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CAMP ON THE TOBEATIC

The Way of the Woods

A Manual for Sportsmen in Northeastern United States and Canada

By

Edward Breck

With 80 Illustrations

G. P. Putnam's Sons
New York and London
The Knickerbocker Press
1908

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A little time ago, while rummaging among some ancient papers, I chanced upon a faded little note-book containing a synopsis of a projected poetical romance written in the scrawling hand of my early teens, when the ecstasy of authorship first intoxicated my dreamy young brain. Across the first page was inscribed in would-be ornate letters the legend:

"TO NATURE AND THE GODS I DEDICATE THIS WORK!"

And now in sered middle-age I smile to think that my boyish paganism has returned to me, and that I might in all seriousness set that flamboyant inscription in this place, were it not that, as long as this hand shall hold a pen, no task of mine can be consecrated to any other than to her whose long life has been an epic of devotion to the one that has gone before, and the one that is left.

I DEDICATE THIS LITTLE BOOK

TO MY SWEET MOTHER

182835

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INTRODUCTION

"THE people who always live in houses, and sleep on beds, and walk on pavements, and buy their food from butchers and bakers and grocers, are not the most blessed inhabitants of this wide and various earth. . . . What do these tame ducks really know of the adventure of living? If the weather is bad, they are snugly housed. If it is cold, there is a furnace in the cellar. If they are hungry, the shops are near at hand. It is all as dull, flat, stale, and unprofitable as adding up a column of figures. They might as well be brought up in an incubator."

Let these words of Dr. van Dyke's take the place of the ecstatic dithyrambs which every nature-writer is tempted to embody in an introduction to a book of this kind. Thoreau and Emerson and Holmes and Burroughs and Kipling have variously and beautifully given tongue to the sweet command,

"Come back to your mother, ye children, for shame!"

and the many younger apostles of the "Nearer to Nature" faith are still repeating it in fairer words than I can command.

No, let the silver-tongued sing; my call to pen this manual was distinctly a practical one. I could not find among the many volumes devoted to wilderness life a single one of note which treated of the allied subjects with which the sojourner in the woods must

perforce have to do, notably fishing, hunting, photography, and the protection of nature. It has therefore been my primary object to prepare a book that shall contain simple and elementary, yet thorough and up-to-date, instruction in all subjects connected with wilderness life. This instruction is supplemented by a list of the most authoritative works in each branch of woodland knowledge, to the preparation of which I have given much care, and which will enable the reader to pursue further any subject that may particularly interest him.

I have striven also to correct what always seemed to me a weakness of writers on these topics, who, while telling their readers what articles of outfit and equipment they should procure, fail to add the radically important information as to where to find these articles and the approximate cost of them. While the logical elaboration of this (in my eyes) valuable feature has inevitably resulted in the frequent recommendation of certain business houses, I wish to state that no single article has been favourably mentioned in the following pages that has not been thoroughly tried out by myself in the woods, or, in a few cases, by expert friends in whose judgment I have entire confidence. It must, however, be understood that, in the lists given, no pretence to infallibility is made. There are doubtless many excellent things to be had that I am not personally acquainted with; but it seemed proper to confine myself strictly to naming those articles the quality of which I could personally vouch for. The one object in view was, of course, to put my readers in possession of the very fullest and most reliable information.

In regard to the prices mentioned, the reader

is asked to regard these as only fairly approximate, for the reason that, while great pains have been taken to ascertain all prices actually obtaining at the time of the issue of this manual, it must be remembered that these are apt to fluctuate to a greater or less degree.

The style of the manual has been kept as simple and terse as possible, and the effort made not to confuse the novice with a mass of information, especially of a technical nature. There are often, for example, several good ways of doing a thing; but it would seem wiser to point out the best one, instead of perplexing the beginner's mind by an enumeration of them all.

In conclusion I wish to express my grateful acknowledgments to the many friends who have assisted me, by advice as well as in more practical ways, in the compilation of this little book, and especially to Mrs. John Blair, Mr. Albert Bigelow Paine, Dr. John Pinckney, Mr. John S. Perry, Mr. Caspar Whitney, and Mr. Perry D. Frazer.

EDWARD BRECK.

THE WAY OF THE WOODS

PART I

CHAPTER I

PLANNING THE OUTING

THE pursuit of health and happiness, of the countless delights to be secured in no other way than by living the free life of the woods—this is our object. It is to forget the ticker and the ledger; to get out of our ears the jingle of the telephone and the clang of the electric, the querulous voice of the nerve-racked struggle-for-lifer, and the noises of the filth-encrusted pavement; to banish from our eyes the tense, distracting scenes and from our nostrils the noisome smells of city life—in a word to escape from soul-racking artificiality to the soothing ministrations of the Great Mother.

Companions

For the average man it is not good to be alone in the woods. Unless one is a hermit by nature the pleasure of the trip will be greatly enhanced by having a companion with whom to share the beauties, the successes, and even the hardships of the trail. The joy of shared anticipation and preparation is double, and also that of fighting the battle over again after the return. The choice of a companion is most important, for a mistake cannot commonly be rectified. Next to the choosing of a wife it is life's most delicate problem, for in no other situation does a man so inevitably

show forth his character, and especially his petty foibles, as when sharing a tent in the wilderness. Let him be as good an actor as he will, if he possesses a trace of slovenliness, of selfishness, of uncontrolled petulance, of a tendency to "boss the gang," or to find fault, or, worst of all, to sulk, it will surely appear. After a few disappointments in the choice of companions it is no wonder that many lovers of nature, especially those whose vacation comes but once a year, prefer to go it alone. Verily one's companion can either make or mar the pleasure of the outing.

Season

The northern wilderness is enjoyable at all seasons, though perhaps least so from Christmas to Easter, on account of the comparative absence of animal and bird life and the lack of fishing. Nevertheless there is a charm in the silent, frozen places, where snow-shoe and skate and toboggan put blood into the cheeks and ozone into the lungs, and we "pile the huge logs higher till the chimney roars with glee." Spring is the season for the fisherman, as well as those who love to view intimately the coming of the birds and flowers, and the transcendent loveliness of that sublime miracle, the awakening of Nature. To be sure the law of compensation wills it that so much sunshine must have its contrasting shadows, one of which is represented by that wonderful but annoying little pest, the black-fly, whose activity causes many nature-lovers to choose the late summer and autumn for their outing. In early summer comes the mosquito, but it is negotiable, and in the north very seldom apt to be of the poisonous variety. Summer is the children's season, and, in

consequence, that of most family camping-parties. The birds and flowers are at their best, and the fishing is often good, though not to be compared with that of spring or September. The nights are cool but not cold, and life in the open is least strenuous. Autumn is undoubtedly the most beautiful season in the north country. The summer's heat has gone, and so have the flies and mosquitoes. The forest is robed in unrivalled splendour. The trout are again in the running water and eager for the fly. The great game animals are no longer protected by the pinions of the law. The woodcock and grouse and duck are prime for the sportsman and the roasting-spit. The frosty nights make the blood course with unwonted vehemence, and give the camp-fire an increased fascination and solace. If you are a hunter of course the autumn is your season.

Locality

Like the question of season, the choice of district must depend somewhat upon the object of the outing, whether primarily canoeing; fishing for trout, ouananiche, or salmon; hunting the deer, caribou, or moose; shooting game-birds; photographing wild things; or camping-out for its own sake.

Those who commonly repair to the wilderness to spend the vacation may be divided into three classes: first, the adventurous, who yearn for the primitive, the unexplored, the dangerous; secondly, those who, while seeking the real wilderness, have not the time for expeditions into the unknown; and, thirdly, those who care less for the adventurous or the sporting aspects of woodland life, but love rather to pitch their tents in more accessible places and spend their

time in getting on more intimate terms with Nature. Most often this last class will contain women or children.

As to the adventurers of the first class, it is hard to give them cut and dried advice. Absolutely virgin country is naturally easy enough to find in the far north, in regions of which I shall not attempt to speak in the following pages. There are parts of Quebec, New Brunswick, Nova Scotia, and Newfoundland which even to-day are known only to the trapper and the "timber-cruiser," on account of their inaccessibility; which entails a greater expenditure of money and time, as well as much harder work.

The second of our three classes is comprised mostly of sportsmen, hunters, fishermen, canoeists, whose choice of territory is wide. (See below under *Cost.*)

Supposing you have decided to spend your vacation in the woods of the north, but are unacquainted with a suitable starting-point or abiding-place. What is to be done?

There are several sources of information, among them being your own personal friends, advertisements of hotels, railways, and tourist-associations, private accounts in sporting books and periodicals, and, lastly, personal application to local fish and game commissioners, editors of sporting periodicals, and authors.

Most tourists will have instinctively coupled the sport of their hearts with some district well-known as its home, for example the Rangeley Lakes or the Nepigon River for giant trout, the Magdalen Islands for shore birds, New Brunswick and Newfoundland for salmon, Maine for deer, New Brunswick, Quebec, Nova Scotia, and Maine for moose, and so on. But, since

most of us are prone to avoid places where sportsmen most do congregate, we seek rather for less-known and less-spoiled pastures. Obviously the first step is the consultation of some friend known to us as a tourist of northern woods and waters. Failing here we turn to the advertising material of hotels, railways, and tourist-associations, whether in the form of newspaper and magazine advertisements, sportsman's-show exhibits, or illustrated booklets. The last are naturally written from the most interested view-point, and their compilers are past masters in the art of making their readers' mouths water; but they nevertheless contain a mass of well-presented information that is genuine, and many of them, especially those of the railways, are excellently got up. They may be had of the various companies, the best of them being advertised in the spring and summer magazines and sporting weeklies. Of course readers of the sporting periodicals, like *Outing*, *Forest and Stream*, *Country Life in America*, *Recreation*, *Field and Stream*, and *Rod and Gun in Canada*, will be more likely to be familiar with the famous sporting grounds of the north, and some excellent description of an outing will surely have inspired them with a desire to visit that particular locality. Our last source of information, personal inquiry of game commissioners, editors, and authors, is likely to be the most reliable, especially the last two classes, who have no axes to grind. A letter of inquiry, as terse and short as possible, and always accompanied by a stamped envelope, will, I venture to say, invariably bring an answer from the editor of any of the periodicals just mentioned. (See Bibliography in Part II.) Most authors, too, if

they receive letters, will cheerfully impart any information in their power. They may be addressed in care of the publishers of the books or articles which have prompted the inquiries. The sporting-goods houses are equally ready to help in this direction.

As a last resort I shall myself always be happy to answer, to the best of my ability, letters addressed to me at Annapolis Royal, Nova Scotia, on any subject connected with wilderness life and sports.

As a rule it will be found that elder sportsmen and nature students are delighted to hold out an encouraging hand to the apprentices of the guild.

Outfitting

Season, locality, and duration of the trip having been determined, the next problem is that of the outfit, to the proper selection of which I have tried to make the chapters of this manual, and especially those of Part I., a reliable guide. But, though the reader cannot go far wrong in following its directions, no "book-learning" can entirely take the place of experience. For this reason many who go afield for the first time will limit their purchases to personal belongings, and leave the matter of tents, provisions, canoes, and kit to some well-recommended hotel-keeper or head-guide, who is accustomed to provide the camping outfit for so much the day for each person, a system which has its advantages, as, though it is apt to be considerably more expensive, it relieves the sportsman of the task of collecting his outfit and transporting it to the "jumping-off station." A first outing in the woods should be regarded as educational, and, since individual tastes differ widely, it is better not to make many costly purchases. On the return the camper

will have accumulated experience and ideas of his own, and will know better what he wants. He will then enter into the joy of collecting a complete outfit, one of the purest known to the guild, for among true sportsmen anticipation is almost equal to realisation. And the best of it is, that the interest remains the same, whether the outfit be modest or elaborate. The wealthy may buy silk tents and $300 guns, but the man of very moderate means finds as much enjoyment, nay, more, in cutting out, piecing together, and waterproofing his own tent, and in making his own flies and leaders of material bought for the purpose. Happy indeed is he who, in early spring, or even midwinter, begins to take account of his piscatorial or venatic stock while planning the coming trip. Guns are taken down, examined, and cleaned; rods are unrolled and momentous questions of new tops, rewindings, and varnishings decided. The reels too come in for a loving inspection, and the fly-books are brought out with due care and solemnity, and their precious contents spread out in all their perfect or dishevelled beauty, each bearing its tale of triumph or chagrin. Scenes of blood-tingling excitement re-enact themselves at sight of these exquisite instruments of the angler's art, while the eye unconsciously seeks the mounted antlers on the wall or the framed photograph of the pool where the thirty-pounder was finally brought to gaff!

The majority of campers confine their outfit to clothing and sporting implements, but the man who goes farther and has his own bags, blankets, tents, cooking-kit, and even canoe, possesses far greater possibilities for enjoyment, if only in the keeping up and improvement of his equipment.

From the practical side the attainment of a full measure of enjoyment and recuperation is best secured by a right apportionment of reasonable comfort and physical exertion. Many there are, no doubt, who delight to make trial of their strength and endurance, and boast, like Nessmuk, of taking ten-day trips through the unbroken wilderness with a single cooking utensil, a ten-cent tin, or of habitually carrying bigger packs than those of the guides. There is a satisfaction in such feats, but they belong in the category of the exceptional. Moreover they are not to be recommended even to the robust. "Your old-timer, white or red," rightly says Coquina, "who takes one blanket, his rifle, a bag of crackers, and a little salt, goes into the woods or mountains and subsists for days, weeks, or months on Nature's resources, is proverbially a short-lived man. He looks and feels older than he is." The average camper, who starts on his woodland journey with muscles softened by a more or less sedentary habit of life, should be content if he can do his fair share of the daily tasks, and thus find at night the sweet reward of that delicious weariness which ensures a sound, dreamless, and refreshing slumber. The wise man hesitates to overtax his powers at first, but essays to do more and more work as his muscles harden, when he may place his ambitions as high as he likes. To be "dog-tired" at the close of the day's exertions is not an unwholesome sign, provided that one rises refreshed and full of enterprise next morning. There is a large class of tourists, mostly indolent of spirit or out of drawing round their waistbands, who work far too little in the woods and thus, while they profit by their outing, miss the full

measure of its advantages. It is well to remember that life in the woods sharpens the appetite, and that the consequences of this must be worked off. At least one good sweat every day is the secret. If your appetite is not good the reason is pretty sure to be that you are not doing your share of the work. It is seldom that a man who sweats thoroughly once a day cannot eat and sleep well.

The great question, upon which the solution of our problem primarily depends, is *what to take with us*, in order to strike a proper balance between comfort and work. Undoubtedly one should not miss the opportunity of getting on with as few as possible of the myriad complicated luxuries which render urban life so artificial, and which are in themselves entirely unnecessary. Therefore heed the good old advice to *go light*. To be sure the art of going light and yet be comfortable is the very essence of woodcraft. As Nessmuk insisted, the problem is not to "rough it," but to "smooth it." Do not be bullied by that class of sporting writers and "tough" woodsmen whose chief delight is to deride the tenderfoot, and who have only scorn for any one who dares to do a thing in any other way than just theirs. A vast deal of cant has been written about matching one's strength against the forces of Nature. The true problem is to woo Nature to help us, to harmonise with her ways, and thus to lead a natural, comfortable, and wholesome life. Heed not the "tough" camper who flings himself down "any old place" and mocks you on your bed of thick, soft boughs or of air; and if you prefer to spend a morning in loafing about camp or engaged in that delightful pastime called by Charles Dudley Warner the "art

of sitting on a log," do not let your soul be ruffled by his derisive guffaw.

Therefore, while striving to go light and to become independent of really unnecessary appurtenances of city life, by no means neglect comfort. On a first or second trip there is even no harm in taking too much. The art of elimination is not learned in a day, but comes inevitably with experience. There is a charm, too, in trying out new things. It is a part of the game. Improvements in forest paraphernalia appear every year, and to flout them is folly. Why not cleave for ever to the muzzle-loaders, the black powder, and the heavy fishing-rods of our fathers?

My advice is to send for the catalogues of the manufacturers of and dealers in camping and sporting articles, whose advertisements are found in the sporting periodicals, and to study them closely. While they contain many things that are unnecessary and sometimes bad, they also offer the latest and best, and are inspiring as well as instructive.

Cost

The financial question is, of course, a very important one. The tourist who has had no experience of camping or canoeing would be very foolish to undertake a trip of any length without the services of one or more guides, or at least the help of some experienced friend. Even an old camper will find the help of a guide a great comfort, especially if he intends to do much fishing or shooting, for the management of a loaded canoe while on the move, plus the work necessary to pitch, maintain, and strike camp, including the cutting of wood, drawing water, and cooking, will, if he does

everything properly and feeds himself well, prove a severe tax upon his time and energies. The tendency under such circumstances it to get along with the minimum, to save time and trouble, a method which often leads to underfeeding. There are few amateur woodsmen really competent to undertake a long journey in the woods without professional help, unless two or more be banded together, and for these this manual has not primarily been compiled. Of course a single camping-out season may serve to promote the neophyte from the tenderfoot class, and the future extent of his undertakings will be limited by his ambitions and his physical powers. I do not mean to discourage "going it alone" as soon as this can be done with profit, but life in the woods is like most other arts; it must be learned, and progress will be the faster for a course of instruction under a competent master, either amateur or professional. There are many things, such as fire-making, fly-casting, paddling, etc., which can perhaps be learned in time by experience alone, though by no means so readily or thoroughly as when taught by a good master; while others, such as using the axe, packing a horse or mule, and various kinds of shooting and hunting, can never be really mastered without the aid of practical lessons. In many provinces, such as Maine, New Brunswick, and Nova Scotia, non-residents are not allowed to hunt without guides, nor in some regions even to camp.

In Nova Scotia, and the less known portions of some other provinces, guides charge $1.50 a day for fishing trips and $2 for hunting. As one goes west these charges increase. It follows that the most inexpensive expeditions may be undertaken in

Nova Scotia, from $2.75 to $3.50 per day and person covering all expenses including a guide and canoe for each member of the party, tents, blankets, cooking-kit, food for all hands, and teaming of persons, canoes, and duffle. The cost of a trip to New Brunswick, Quebec, or Newfoundland will be from one to three dollars a day more than this; while Maine prices are about the same as those of New Brunswick. In the hunting season the required license-fees for non-residents must be added to the expenses. These are in New Brunswick and Newfoundland, $50; Nova Scotia, $30; Quebec, Ontario, and Michigan, $25; Maine, $15 (see *Game Laws in Brief*, Forest and Stream Co., 346 Broadway, New York City, 25 cts. for latest game-laws of U. S. and Canada).

CHAPTER II

CLOTHING

THE most suitable clothing is that which is simplest and lightest, consistent with durability and protection against the elements. A somewhat wide choice is offered and the selection depends upon the object and locality of the expedition, the season, and the individuality of the sportsman. Under separate headings, *e. g.*, "Moose-Hunting," "Angling," will be found remarks upon the clothing best suited to the various branches of sport. Let us prepare, in imagination, for a canoe trip in spring or summer, and note winter variations as we proceed. The reader's attention is called to the costumes worn by the persons depicted in our illustrations.

Underclothing

At all seasons of the year soft, pure woollen underclothing is best and in cold weather indispensable. It is very porous and absorbent, and thus ventilates the skin and absorbs moisture readily, both water and perspiration. You may wade a cold stream for hours and yet not take cold, while every other cloth gets clammy and uncomfortable. Many complain that wool irritates the skin beyond bearing, but perseverance and a little will-power will overcome that. In very warm weather it is not necessary, but even in sum-

cold nights and even days occur frequently in the north woods. I prefer my underclothing very thin and of the softest, finest variety, like the Jaeger. In cold weather I put on two suits, or, if need be in winter, even three, which are warmer than one garment of their combined thickness. Northern mornings have a way of starting in cold and raw, calling for about everything that one can conveniently pull on; then one can "peel" as the sun sends the thermometer soaring.

Wear all underclothing before taking it into the woods, and have it washed several times, to be sure of the fit. Drawers should not be too tight round the knees. In summer it is well to have one undershirt with short arms, as one often goes with rolled-up sleeves. Nor does the forearm require so much protection. In case, however, you are wont to perspire freely, both undershirts had better have long sleeves. No more than two need be taken, as one can always be washed at night. For sleeping an extra silk or cotton undershirt may be taken if desired. In winter another woollen undershirt should be added for emergencies. One extra pair of drawers is sufficient for all seasons.

Socks and Stockings

Wear nothing but wool. If the feet are tender wear a pair of light cashmere socks next the skin and a thick pair over them, or even two if extra large moccasins are worn. As socks take up very little room I take three thicknesses with me, and can thus clothe my feet to fit any shoe and any temperature. Long stockings are worn with knickers of course, and the home-knit ones that can be best got in the country are better than the

machine-made golf-stockings. With these a pair of light socks may be worn next the skin. In winter very heavy long stockings are worn by woodsmen, either over thick drawers, or pulled up over drawers and trousers both and tied round the knee to keep out the snow. This; with moccasins or larrigans, is a rig that cannot be improved upon for cold weather.

Shirt

The shirt should be of soft but strong flannel and should fit well. Grey is the most inconspicuous colour. Blue is conspicuous and apt to crock and get rusty. Have the wide collar nearly meet when turned down; it will fit better so and will protect you more effectively when turned up. There is usually a small pocket in the breast for the watch; if not have one made. A light-weight shirt is best in summer; in winter it may be thicker or even thickest. Unless you have plenty of room take only one shirt. When it gets wet or you are drying it after washing, wear your sweater or go without.

A soft but strong silk handkerchief is a good thing to wear round the neck, protecting from both sun and cold, as well as from chafing. In case of accident it makes a good bandage or sling.

Outer Garments

These should possess two virtues: protection against wind and weather, and plenty of pocket-room. For the latter reason a coat is preferable to a sweater, especially for a sportsman, and, from this standpoint alone, a khaki or duxbak shooting-coat is best, being practically all pocket. It sheds a shower but a hard rain wets it through,

and it affords little protection against the cold. I like to wear duxbak trousers in summer, and have found that, though not impervious to rain, they dry off in a jiffy. For any kind of hunting, it, like all canvas, is too noisy. On the whole my preference is for an old woollen sack-coat of neutral colour and loose fit, with reinforced pockets. If the trip is entirely overland the duxbak is perhaps better, and an extra sweater (light-weight) may be taken along, worn under the pack on portages. Some campers wear sweaters entirely, but they are inveterate brush and bur catchers and soak up rain quickly. Nevertheless a sweater is a great comfort and I never go into the woods, except in the hottest weather, without one. The best kind is one that has a high collar which may either be turned down or buttoned up round the neck by means of a snap-button. Light reddish-brown or grey are the best colours, as they can then be used for hunting and do not show every bit of dirt.

There is great comfort and convenience in a waistcoat, and the very best one is a canvas shooting-vest with four big pockets. Have this lined with flannel and provided with an interior pocket. It will then represent the ideal of comfort, convenience, and toughness. For midsummer work the lining is not necessary. Especially when no coat is worn such a vest is invaluable. The inside pocket may be made of some waterproof material.

If only one pair of trousers is taken the material should be wool with little nap. They should be slit from just below the knee down and a wedge-shaped piece cut out to make them fit the lower leg, the slit being closed with four or five thin but strong buttons.

In this shape the trousers will fit without inconvenient folds into high boots, leggings, or stockings. The "tough" camper will tell you they look dudish, but don't be bullied by a phrase. Care should be taken not to have them in any way tight at the knees. Any old pair of still whole trousers can be treated in this manner in an hour. To the wearer of knickerbockers the question of side buttons is of no consequence. Knickers with simple straps are better than those with buttoned cuffs. All trousers should be provided with generous back pockets, one on each side. If your trousers are old have the seams of the pockets reinforced or the pockets renewed. Trousers should also be provided with loops for the belt, which should be of stout leather, as upon it are slung the hunting-knife, camp-hatchet, revolver, or what-not. The belt-buckle should not be of sparkling steel, to frighten all the game in the woods or trout in the stream, but of some dull material.

The question of suspenders is a personal one. They are necessary when a belt filled with heavy cartridges is worn. This ought to be avoided where possible. For field shooting a special shell-vest is usually chosen, while for rifle ammunition there is on the market a short leather strip provided with loops for a dozen cartridges, which may be hooked securely on to any belt; and no man is entitled to more big game than he can kill with such a supply.

A suit of oilskins should be taken on a canoe trip of any length, especially in spring and early summer, my experience being that it is apt to rain about one third of the time, especially near the coast. The Gloucester fishermen's oilskins are stiff at first but become pliable with wear. To be preferred are the

garments now made for yachtsmen, which, though not so tough, are much lighter and more comfortable. Oilskins are positively the only covering that will keep you quite dry in a severe rain of any duration, except perhaps the rubber fishing-shirt, which is a bulky and hot affair. With oilskins the outer coat is not absolutely necessary. Mackintosh is not to be recommended for the woods; it is too heavy and not impervious to a long, hard rain. A light rubber poncho is not a bad thing, but for canoeing it is inferior to the oilskin jacket, as the arms are confined. For land trips the poncho is better, as it may be either worn over the head, or used as a bed or tent and in many other ways. The lighter the better, but lightness is always gained at the expense of strength. Going without waterproofs will do for overland trips where one is almost constantly on the move, but to sit in a canoe or fish along a stream for a day or two completely drenched is altogether too miserable a business, as well as quite needless.

In a hard rain the wristbands of the oilskin jacket should be tied up with twine or a couple of those convenient stout rubber bands, a supply of which should be in every kit.

For winter I have found a Carss Mackinaw jacket excellent.

Headwear

Hat or cap? I vote for hat, a medium-weight felt with a fairly wide brim stiff enough, when turned down in wind or rain, to "stay put" and not flop about. For this reason I choose one with the edge of the brim bound. The leather sweatband may be torn out, as the felt will cling better to the hair in a gale, or one of flannel may be

substituted. I keep the leather, however, as I don't like the press of the rougher material on my forehead. Light-brown is the best colour; grey is good. Caps allow the sun and rain to strike in from the side, a serious fault in my eyes. As a spare headpiece one may be taken along, a light one. For camp use a silk or knit wool skull-cap is excellent, the former for warm weather, the latter for cold. They make good nightcaps. For those who wear glasses the broad, stiff brim of the hat is a necessity. Don't take sou'-westers, rain-hoods, and that ilk. Your hat sheds nearly all the rain. The coon-skin and other fur head-coverings are only for winter use in the far north.

Footwear

The Amerind, as the ethnologists call the American Indian, invented the moccasin, and the paleface has thus far failed to improve upon the pattern of this foot-covering for forest life. But the white man makes better moccasins than the average Amerind, and I would rather have a pair bought of a good dealer or in a country larrigan-factory than one made by my guide. The two great virtues of the moccasin are lightness and softness. When you get used to them they are like gloves, and the foot becomes in a manner prehensile, gripping the stones and sticks like a hand. Their lightness makes you feel skittishly lively after dragging about a pair of heavy hunting-boots. At first they will hurt your poor, tender, pampered feet, but stick to them; in a short time your feet will toughen. Wear an extra pair of socks with them or an insole of some material that will keep shape after wetting. You can cut a good pair out of birchbark in the woods. These may protect you from a stubbed

toe before you have acquired the catlike, careful gait of the old trail-hitter. The best insoles are of straw or stiff felt. There are two varieties of moccasin, the moccasin proper and the larrigan, or ankle-moccasin. I prefer the latter, as they protect the ankle and do not allow the ingress of sticks and gravel so easily. Literal tenderfeet may have a pair of double-soled moccasins made to break in their feet, graduating to single soles later. Double

FIG. 1.—Moccasin, Shoepack, and Moose-shank

soles are good at any time in rough country. The extra sole should be inside and not show. Buy good stuff. Take the moccasin in your hand and examine and feel. Reject all ornamented work. Either oil-tanned or smoke-tanned are good. On long trips take two pairs, especially in rough country, as they do not wear well. Tallow them frequently or treat them with some good boot-grease. This will keep them soft. "Collan Oil" is also excellent. Do not attempt to dry any tanned shoes before the fire; disaster will follow. Let them dry naturally or stay wet, which they are really not, save on the outside. Moccasins on fishing trips are only for

the camp; for wading something stouter must be worn.

For canoe trips a pair of camping-shoes with pliable heelless soles may be recommended, though after all they are no improvement upon moccasins, save in the protection of the foot. Any old but still good walking-shoe will do, though not so soft or tough. For general use in the woods, whether canoeing or cruising about, I am personally very fond of the soled moccasin called in the Maritime Provinces and other regions shoepack, made either low or ankle high. It is made with a rather stiffish sole, which either extends the whole length of the bottom with an extra thickness for the heel, or is absent under the instep, thus lightening the shoe but affording less protection against sharp stones and sticks. When *sparingly* provided with small, round-headed Hungarian nails, even a steep, wet, moss-covered rock has no terrors for the shoepack, and it is excellent as a wader, especially when worn with stout leggings. In the canoe you must be a bit careful not to scratch the bottom. The nails should be put in near the edge. Hobnails are a delusion; never use them. Shoepacks are hard to find in town, but can be got of the country larrigan makers.

Moose or caribou "shanks," made from the legs of these animals, with the hock for a heel, are tough and comfortable, but so warm, the hair being left on, that they are generally worn only in winter. They should be bark- and not alum-tanned. For still-hunting there is nothing better.

For those who like a stout sole and solid ankle-brace, the hunting-boot, seven to twelve inches high, is a satisfactory article, though wofully heavy. It

should have a few round-headed nails on sole and heel, not over eighteen altogether. Better than the boot is the high moccasin. I have a double-soled, ten-inch pair made by Gokey that are waterproof and solid ($7). The same thing is made for prospectors and other rough-country travellers with a sole, and a substitute for the rubber boot is made by providing these with a leather top. This is the ideal wader, though expensive.

FIG. 2.—Moccasin-Boot, Hunting-Boot, and Double-Soled Larrigan

In the woods no waders have any place, because, though they are warm, even when wet inside, and protect the legs, they are too heavy and bulky. The idea that they, or any other shoes, keep out water is a delusion, for perspiration and condensation do the work, and all too often a slip on the rocks causes the water to pour in and one is "stewed in one's own sauce."

Don't be afraid of wet feet; it is the normal

condition of the woodsman in spring and summer. It keeps the feet soft and, if woollen stockings are worn, does no harm.

Take along some tallow or a box of "Touradif Boot-Grease." Before starting your footwear may be thoroughly treated with "Never Wet" or Collan Oil. The greasing should be done inside as well as outside. I pour Collan or neat's-foot oil into all my shoes and let it soak into the seams, warming the shoes a little first.

For camp slippers the extra pair of moccasins may be used. Some take a pair of "sneakers," but they are flimsy. A pair of felt slippers is best if there is room for them, but the moccasins should suffice.

Leggings

In rough country leggings are a great comfort, especially when knickers are worn, as briars and sharp sticks soon tear to pieces the stoutest stockings. In wading with low shoes they protect the legs and prevent the trousers from sagging down when heavy with water. For spring and summer brown canvas is a good material, but do not buy those bound with cheap leather, which is sure to come off after an hour's wading. Have them stoutly bound with cloth or canvas. The army pattern is about the best for this season. Leather is well enough on the plains but is too heavy and noisy for the woods. The like may be said, so far as hunting is concerned, of canvas, and for this reason, and because the underbrush is less troublesome than in summer, long stockings are preferable. The ideal legging I have not yet found. It should be of some tough but smooth woollen cloth, like loden, and lace on.

The puttee legging, composed of strips of cloth wound spirally up the leg, is too apt to be displaced and torn in the north woods.

Home-made Clothing

Before leaving the subject of clothing it may be well to suggest that some ability with the needle is often of advantage in the forest, particularly on long trips far from civilisation. The ideal woodsman should be able to fashion at least every piece of his outer clothing, including cap and moccasins, should occasion require it; and, at very least, to make all necessary repairs with thoroughness if not elegance. Woodland shoe-making may come in very handy should the kit be lost or the moccasins wear through. One must have the leather (see *Woodcraft*), and a small awl and some waxed ends ought always to be in the kit. (For those who care to essay a pair of home-made moccasins an article in *Forest and Stream* of December 15, 1906, may be recommended.) Better take an extra pair with you from town, as even Indian work is inferior.

RECAPITULATION

Clothing for Canoe Trip in Warm Weather

Worn on Person: Woollen underclothes; grey flannel shirt; trousers; belt; waistcoat; handkerchief; socks or stockings; moccasins or shoepacks; hat.

(*Optional:* neckerchief; coat; sweater.)

Take Extra: Coat (if not worn); sweater (if not worn); suit underwear (of different weight); 3 or 4 pairs socks; 5 handkerchiefs; cap or skullcap; pair trousers; pair shoes or extra moccasins; oilskins or poncho.

(*Optional:* camp slippers; dogskin gloves—if not worn.)

For Overland Trip (Carrying Everything on the Back)

Omit from above: 2 pairs socks; coat or sweater; slippers; extra trousers; cap; oilskins.

For Winter Trips; Overland or not

Add: suit underclothing; extra stockings. (*Optional:* Mackinaw coat instead of sack-coat; German socks; moose-shanks; mittens or gloves of knit wool; oilskins.)

CHAPTER III

PERSONAL OUTFIT

THE personal outfit includes everything used by the individual alone and not in common with all the rest. It may be divided into:

1. Articles Carried on the Person.
2. Knapsacks and Bags and their Contents.
3. Sporting Articles.

ARTICLES CARRIED ON THE PERSON

Spring or Summer Trip

Continual: Watch; compass; jackknife; waterproof match-box; dope-can; salt-box; emergency lunch; plaster.

Optional, recommended: Hunting-knife; ammonia; head-net; note-book and pencil; magnifying-glass; hooks and line.

Occasional: Opera-glasses; liquor-flask; pistol or revolver; smoked glasses; camera (see *Photography*); camp-hatchet; money; pipe and tobacco; map.

Watch

Although it is quite possible to get on in the woods without a timepiece of any kind except old Sol, most of us do not spend enough time in the forest to escape the feeling of being more or less lost without one. Nevertheless I strongly recommend trying the experiment, if for the one reason that a watch represents, perhaps more than any other single article, our dependence upon artificial helps. Here is a golden opportunity to cast aside what is, if you come to think of it, a totally

unnecessary piece of baggage; for what difference does it make to you in the woods if you are a half-hour out of the way according to old tyrant Greenwich? You have no train to catch. Leave your ticker at home and note how quickly you will take to scanning the heavens with a new interest. Sundown and high noon will acquire a new significance and you are nearer to nature at once. Before you start out make a note in your diary of the hours of sunset and sunrise in your section at that time of the year, and that will suffice.

If you do take a watch let it be a cheap but reliable one, and let the "chain" be of leather and so attached to watch and pocket that it will not catch on brush or tackle. The dollar watches are too flimsy for the woods. It is a good idea to carry the watch in the breast-pocket of the shirt, where it will not get wet if you slump into the water up to your waist.

The Watch as a Compass: Point the hour-hand to the sun and *south* will be half-way between the hour-hand and the figure XII.

Compass

A 50-cent compass, cased in brass with slip cover, is good enough for ordinary trips, but for a long tour into unexplored country a somewhat better quality is recommended. A large size is not necessary. Dealers keep a good and varied line of compasses. The compass should be attached in some way to the pocket, or at least should have a rubber band wound round the handle, so that it will not fall out when you stoop or fall. One without a cover, though easier to consult, is too apt to be broken. Choose an arrow-shaped needle; one

with like ends, one being blued, is harder to read in bad light.

Jackknife

This should be of medium size and good steel. One with two blades and a file is my favourite, though the file is not strictly necessary, since you have one in your tackle repair-kit (see below). The handle should fit the hand perfectly, an important point. Carry it where it will not easily fall out of its receptacle. If a hunting-knife is carried, the jackknife need not be so large. It should open easily, even when the fingers are numbed with cold. Avoid kit-knives, at all events as pocket-knives.

Hunting-knife

This is carried in a sheath, into which it sinks at least half-way up the handle, fitting snugly, the sheath hanging from the belt. The woodsman carries it directly behind. A good sheath-knife is a joy. It is not so easy to find, for most of those offered are too hard or too pointed or too something else. The blade should

FIG. 3.—Hunting-knife

be not over 4½ inches long and rather thin than thick, with a handle that fits the hand. The knife here illustrated I have used for years and found it excellent for general use about camp, as well as for skinning and cutting up game. Its handle is ebony and it costs $2. It may be found in the sporting goods catalogues. Other good knives are made by

the Marble Safety Axe Company. Look out that you get a sufficiently long handle but one not heavy enough to drop from its sheath when you stoop over. The remedy for this is a close-fitting sheath. (For camp-hatchet see *Camp Furniture*.)

You will carry a few loose matches in your vest-pocket, but should *never* leave camp without a waterproof match-box on your person. You may need it any day, and when you do you will need it badly. It is worth while carrying one even to build a fire and thaw out after a spill in the river.

Match-box

If the safety match-box made by the Marble people were not of metal, and hence apt to be dented and therefore to jam, it would be ideal. If used it should be kept where a fall is not likely to injure it. A better one, for the reason that it is practically indestructible and still quite water-tight, is the hard-rubber box sold by several dealers, which has a simple screw-top ($ .50). It has also the great virtue of floating, while a metal box is lost if dropped into lake or stream.

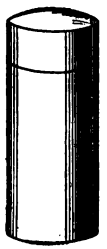

FIG. 4.—Rubber Match-box

If you are off on a side trip from camp carry the stub of a candle; it will make fire-making in the rain easier.

A few boxes of wind-fusees should be taken, especially on canoe trips. (See *Provisions*.)

A small box (wood is best) filled with salt should be hidden away somewhere on the person whenever

you leave camp on the chance of not returning in time for the next meal. It is a good idea to have it always along, for you might get lost. It takes up next to no room and trout with salt are far better than without.

Salt-box

When you have been lost or strayed from camp for a day or two you will appreciate the necessity of this. It should be in your pocket whenever you are not cock-sure of remaining within hailing distance of the commissary department, and who can always be sure of that?

Emergency Lunch

The emergency lunch may be made up of almost anything the cook can spare, when it is meant to be eaten at a certain time. What I mean, however, is a small amount of nutritious food *always* carried on the person in case of getting lost or straying farther from camp than was intended. The one I generally carry consists of a piece of Baker's "Dot" chocolate about three cubic inches in bulk, two or three inches of German sausage, and a couple of bouillon capsules, all wrapped in a piece of surgeon's oiled silk or wax-paper inside a small tin box. Of course whenever the danger of straying seems greater an addition to this should be made. For ordinary trips it is enough to have a snack on the person that shall help out the fish or game in case of having to make a night of it away from camp, or even keep up the strength if without tackle or firearms. Tea may be taken in place of the bouillon capsules. In case of a possible deviation from camp a tin cup should be taken, strung at the back of the belt out of the way but very much in place in case of an enforced camping.

A small roll (perhaps a foot) of surgeon's adhesive plaster should always be carried on the person. It may be wrapped in wax-paper or tin-foil. Some dealers put up a small quantity in a tiny *flat* aluminum box, which rests in the pocket unnoticed until needed. It is for cuts and bruises. (See *Medicine and Surgery.*)

Plaster

I use the word "can" advisedly, as I have found that the most convenient method of carrying a small quantity of "fly-dope," sufficient for the day's anointing, is in one of the little flat ten-cent oil-cans with screw-tops, that exude the liquid when pressed. They fit well into the pocket, cannot be broken, and the contents do not run out. The little cap which covers the "business end" is generally provided with a needle, which is not necessary for our purpose and which may be plucked out with tweezers. A small flat bottle may also be used to contain dope, but glass is always inferior to tin in the forest.

Dope-can

The discussion of dope-cans brings us to the important subject of the dope itself, and the great problem of fighting off the winged pests, which, unlike the furtive folk of the forest, welcome your coming in spring and summer with enthusiasm, and flock to meet you with a cordiality that threatens to drive you back to civilisation. These dratted little persecutors are of many kinds, but the three most virulent in the north woods are the black fly (*similium molestum*), our old friend the mosquito, and the midge, or no-see-um, often yclept the punky. Some happy people there are who, though annoyed, are not poisoned by their bites, but the majority

of us may as well hit the back trail unless we can find protection from their persecutions.

The black fly is a fiend incarnate though a very pigmy in size, being only about $\frac{1}{8}$ of an inch long and often shorter.

> Should an unprepared unfortunate [says Mr. Wells in his *American Salmon Fisherman*] chance upon them when in force, though he have the hide of a rhinoceros, and the enthusiasm of Father Walton himself raised to the twenty-fourth power, neither will avail him anything. . . . Let no man in the vicious pride of his youth and strength fancy that he can defy their attack, for they will rout him at last, horse, foot, and artillery, just as surely as they meet him. A thin skirmish-line he may be able to encounter, though with discomfort, but a serious attack in force is beyond human endurance.

The no-see-um, whose diminutive size is denoted by his nickname, conferred upon him by the Indians, is less formidable than his cousin but considerably more shifty and pertinacious. The black fly possesses one great virtue—he knows enough to quit and go to bed the moment the sun goes down, while the midge sticks to his nefarious business well into the shades of eventide; and this depravity he shares with our old enemy the mosquito, who knoweth no night and no day, and whose operations are, indeed, the original "continuous performance." Taken all in all the whole "kit and boodle" of them are a most unmitigated nuisance, and the only thing we can say in consolation is best expressed by paraphrasing Mr. Wells, to the effect that, were it not for these drawbacks, life in the woods would be altogether too good fun for mere mortals.

And now for the remedy. There are two ways of keeping the poisonous probosces of these insects

out of one's skin; first, the anointing of it with one of the many preparations variously called fly-dope or bug-juice, and, secondly, the wearing of head-nets.

Every dealer in camping and fishing paraphernalia, as well as nearly every individual fisherman, has produced one or more kinds of dope, all warranted to keep winged pests at bay. Believe them not, or at least believe them only in part, for there are times, and I have experienced them often, when, far from fleeing the most malignant juice, the furious hordes will rush in and seem fairly to revel in it, be it brewed from Nessmuk's or any other man's receipt. I have picked them off my face by the score, actually drowned in the oily mixture; for there is one curious thing about the black fly: once alighted he will not budge and you may take your time in removing him —if you care to be deliberate. He will not dodge like the mosquito, but immolates himself like a Japanese soldier at Port Arthur. Nevertheless dope is a blessing, for, though it is not often a complete preventive, still sometimes it is and at all times at least a deterrent. I add Nessmuk's and Wells's dopes and my own.

Nessmuk's Dope, from *Woodcraft*:

Pine tar, 3 oz.
Castor-oil, 2 oz.
Oil of pennyroyal, 1 oz.

Simmer all together over a slow fire and bottle. Enough for four persons for a fortnight.

H. P. Wells's Bug-Juice, from *American Salmon Fisherman*:

Olive-oil, ½ pint.
Creosote, 1 oz.
Pennyroyal, 1 oz.
Camphor, 1 oz.

Dissolve camphor in alcohol and mix. For four persons.

Breck's Dope:
Pine tar, 3 oz.
Olive (or castor) oil, 2 oz.
Oil pennyroyal, 1 oz.
Citronella, 1 oz.
Creosote, 1 oz.
Camphor (pulverised), 1 oz.
Large tube carbolated vaseline.
Heat the tar and oil and add the other ingredients; simmer over slow fire until well mixed. The tar may be omitted if disliked, or for ladies' use.

It will be seen that the Breck dope is more or less a combination of the other two, though this came about through no intention of mine. I planned to brew a concoction that should be a healing counter-irritant after being bitten, as well as an insect-discourager. The camphor and citronella are anathema to mosquitoes; the carbolated vaseline is healing and antiseptic, and gives body to the dope. The mixture, as above given, will rather more than fill a pint flask, which is best made of tin with a screw-on top, such as is used for oil. A sediment collects at the bottom, for which reason the flask should be well shaken before being tapped to fill the small dope-cans. It is well to collect the ingredients for your dope before leaving civilisation, as some of them, notably pure tar, cannot be found in many country apothecary shops. Do not get dope in the eyes. A good dope in the convenient paste form is Jenner's "Fly-Pizen."

When the enemy's attack develops in force open up the ammunition-can and rub in well—neck, ears and behind them, forehead (look out for the eyes), nose, cheeks, wrists, backs of the hands, and up the arms. Renew the application whenever necessary

and don't wash off until dark; in fact old Nessmuk and many otherwise cleanly woodsmen counsel a certain reticence in the use of soap and water while in the pest regions, being loth to lose the glaze formed by many coats of dope! There is no rule but experience and necessity. Not a bad idea is to have with one a second small flask filled with a mixture of citronella, camphor, and pennyroyal, for keeping off mosquitoes at night. I always take along a small cake of camphor and crumble it over everything in knapsack and war-bag. It is cleanly and keeps off crawling as well as flying pests.

Head-net

The second main defence against flies is the *head-net*, which is used again and again in sheer desperation by campers and fishermen who have repeatedly cast it aside in disgust at its stuffiness and opaqueness. Most anglers would rather be bitten than wear one, preferring to retire to the camp-fire smudge for the rest of the day. One reason for this is, that there is not a head-net sold by the dealers through which the world does not appear as a very hazy dream. Added to this is the disadvantage of not being able to communicate freely with the mouth. Nevertheless there are moments in the fishing season when it is net or nothing, and I therefore give here the recipe for the only good head-net I have ever seen, in the hope that it will prove as great a comfort to my readers as it has to many of my friends and myself.

Buy sufficient fine *black silk Brussels net* (rather expensive stuff) to make, either out of two or three pieces, a bag rounded slightly at the closed end, from 16 to 20 inches long and wide enough to

go over the turned-down rim of your hat. Either select the hat first or make the net large enough for any, but the better the fit the more satisfactory will be the net. If it is drawn down from the brim fairly taut across the face it obscures the vision to such a small degree that one may easily forget its existence, a thing that has happened to me repeatedly. The open end has a running black braid which is drawn tight under the upturned shirt-collar. A flap falling from the tape down to the shoulders may be added, but I have never found this necessary. The net should fit so that it does not touch the face at any point. Many complain that smoking is impossible with a head-net but I smoke my pipe merrily enough under mine. Expectoration is of course impracticable without loosening the tape, but personally I am not interested in expectorators.

After all is said and done we all prefer infinitely to do without head-nets, but, since there are occasions when they alone are able to supply a considerable degree of comfort, I recommend this one as the only contrivance of the kind which is certainly not stuffy and which can be easily seen through. In spite of its extreme lightness it is astonishingly tough, being of silk. I always take several with me into the woods on fishing expeditions, as they fold together into less space than a single handkerchief, and have often been amused to have a hardened old guide hint at the loan of one and wear it with evident relief.

Since silk veiling is expensive the net, with the exception of the side opposite the face, may be made of cotton veiling, or of green or brown chiffon. Black is the only colour that does not obscure the vision,

while it protects the eyes, like smoked glasses. The top may be strengthened by a disk of linen.

Buckskin gloves are often recommended for those who come into the woods fresh from the counting-house, but it is better to take the blisters and the freckles as they come and harden up as soon as possible. Nevertheless a pair of buckskins, or, better, thick dogskins, often come in handy, both for cold and flies. In cold weather woollen mittens are best, and, for the far north, woollen gloves worn under fur mittens which are suspended by a cord round the neck, so that, when slipped off, they will not be lost. For fishing a pair of short-fingered dogskin gloves, treated with oil, are good to keep the flies away from the unprotected hands. Linen gauntlets with elastics at the top are efficacious.

Gloves

A tiny vial of strong ammonia is a good thing, as a drop on a fresh bite frequently counteracts its virulence and destroys the consequences. The chemists sell a small hard-rubber vial with screw-off top and application sponge, which is very practical for the purpose.

Ammonia

A pair of these may be recommended for use in winter, especially for those having weak eyes; in warm weather there is less use for them, but the glint of the sun on the water is often very trying. It is a personal matter.

Smoked Glasses

These are emergency tools and should be stowed away in a back pocket whenever starting on a side trip from the main camp, unless the object be fishing, in which case you will have

Hooks and Line

your tackle with you. Many a man has been comforted, yes, saved by fish caught with this spare line and three or four hooks.

Money

If you plan to return to your starting point and to traverse only the wilderness, or merely touch a frontier settlement or two, take a small sum in bills wrapped in surgeon's oiled silk or thin rubber and tucked away in the inside pocket of your vest. This will be sufficient to make any chance purchases or for the hire of a man occasionally. If you are on a long trip with the likelihood of coming out at a different point far distant from your jumping-off place, your money may be carried in a chamois-skin money-belt, but it should be well wrapped up in thin rubber, so that, in case of immersion, it will remain dry. The inmost vest-pocket is a better place unless the wad is too bulky.

Opera-glasses are generally used only in mountainous country; I have never found their need in the north woods. *Pipes* and *tobacco*, *note-book* and *pencil*, *liquor-flasks* and *magnifying-glasses* are all more or less personal matters. The last are for those interested in botany, mineralogy, and natural history. For *maps* consult *The Knapsack*, etc.

Firearms

For a discussion of guns and rifles used in hunting, the separate headings may be consulted. The ordinary camper will derive much amusement from some firearm of no larger calibre than .22. Revolvers may be dismissed at once The choice lies between a rifle, a pocket-rifle and a pistol, and the selection may depend upon the character of the trip. For a canoe expedition,

I recommend the Stevens or the Winchester .22 repeater, chambered either for the *long*, the *long-rifle*, or the *Winchester* cartridge. The Stevens single-shot .22-calibre rifles are splendid little guns and take the best cartridge of that calibre, the *.22-long-rifle*. The Winchester rifles do not take this cartridge. The Winchester automatic .22-calibre rifle, using a cartridge of its own, is a very fine firearm, though expensive ($16.00). If a single-shooter is chosen do not get a target rifle, as they are too heavy. The Stevens "Favourite No. 19," using the .22-long-rifle smokeless cartridge, would be my choice after a repeater.

If the tourist does not wish to be burdened with a rifle he may choose a pocket-rifle or a pistol, both being single-shooters. They are, of course, much harder to use accurately than rifles, but with practice can be made to do very wonderful shooting. The pocket-rifle is merely a long-barrelled pistol with an adjustable skeleton stock. The Stevens pocket-rifles (Nos. 40 and 40½) with 12-inch or 15-inch barrel and chambered for the .22-long-rifle cartridges are very fine little weapons; they cost about $12.

On walking tours the stock is in the way and a simple pistol should be taken, such as the Stevens "Lord" model or the Smith & Wesson 6- or 8-inch pistols. Single-shot arms always tend to better shooting, but a repeater is a great convenience. A small can of some good oil, such as "3 in One," a soft rag or two, a piece of wash-leather, and a cleaning-rod should be taken, and the arm kept scrupulously clean. Never leave it dirty over night. Always use smokeless ammunition and buy it in the United States, for Canadian ammunition is inferior.

Open sights are best for the woods. (See *Sporting Firearms*.)

KNAPSACKS AND BAGS AND THEIR CONTENTS

The Knapsack

Knapsack versus ditty-bag is an old controversy. The knapsack is a trifle heavier, but it has shape and its contents can be packed so that they remain in place, while the things thrown into a bag are apt to indulge in a scramble for the bottom, a chaotic jumble being the result. On this account the knapsack has the call. There are several good ones on the market, that used by the U. S. Army being as good as any. Another, of canvas waterproofed, is sold by the dealers; get the smaller size. For years I have used one of the cast-off pattern of the Massachusetts militia; it is very light but is covered with glazed cloth and hence not so strong as one of canvas. Three pounds should be the outside weight and the sack should be provided with a light canvas and strap harness fitting easily over the shoulders. The knapsack is used to carry all the small personal belongings that get lost in a bigger bag, and, on account of its shape and rigidity, another bundle may be easily laid across it in portaging.

It is somewhat difficult to suggest a definite list of articles to be carried in the knapsack, as they must naturally vary with the character and length of the projected tour and the wants of its owner. There are, however, certain things that may be recommended for any trip, especially one far from civilisation. Among these are:

Mirror	Medicines
Comb	Hypodermic syringe
Brush	Scalpel
Tooth-brush	Playing-cards
Extra films	Diary
Whetstone	Postal cards
Maps	Stationery
Repair-kit	Mending-kit
Reading matter	Wind fuzees
Sandpaper	

Also: Fishing-tackle (in case fishing will be only incidental and not one of the chief objects); instruments for blowing eggs and for other special uses, such as: barrel-reflector, cartridge-extracter, duck-call, whistle, etc.

Toilet Articles

The mirror should be very small and have a folding wire stand at its back, by which it may be hung up on a nail or twig. The comb should be strong but short; the brush, if one be taken at all, small. The tooth-brush should be in the sponge-bag, or in a bag of its own, the proper place for which is in the war-bag or sleeping-bag (see below), and the same may be said for the tooth-paste, which is best in a tube. The razor may be a safety, but here likes differ. I pity a man who has to shave in the woods. For some however it is the greatest luxury. The soap may be contained in a celluloid box or a rubber tobacco-pouch.

Whetstone

The best whetstone for the woods is the carborundum, coarse on one side for axes and hatchets and fine on the other for knives. It will do the work perfectly, and is the best approach to a grind-stone I ever saw. If a coarse stone is taken in the camp-kit, that kept in the knapsack for knives may be very small.

These are discussed elsewhere in this manual (see *Medicine and Surgery*). I always carry with me a small medicine-case containing laxative, quinine and antipyrin tablets, a first-aid-to-the-wounded packet, a scalpel, bought of a reputable dealer in surgical instruments, a hypodermic syringe with two tubes of soluble tablets (see *Medicine*, etc.), a tube of carbolated vaseline, and sometimes a small bottle (covered with olive-wood or wicker) of witchhazel. Also a roll (flat, not round) of adhesive plaster, a couple of surgeon's needles, straight and curved, a little surgeon's silk, a couple of mustard plasters, etc.

Medicines

All these take up but very little room in the knapsack.

For the United States the best maps are those of the U. S. Geological Survey, made on a scale of two inches to the mile and costing five cents each. The Canadian maps are far less satisfactory. Of Nova Scotia there exists none of any value whatever. Several sporting goods dealers have fairly good lines of maps of the northern wilderness, as well as waterproof envelopes for preserving maps. The best way to use them is to cut them up into convenient sizes, after having pasted them on linen, in case the map is not already sold in this form. Be sure to keep a key to the pieces, or you may be confronted with a picture-puzzle that will annoy more than it will illuminate. A good way is to number the pieces from left to right. Few maps of remote forest regions are exact and one should rely more upon one's guide, if there is one in the party, than upon them. The most troublesome features are the small unmapped

Maps

lakes which are apt to be taken for larger bodies of water on the maps and lead to great confusion.

Stationery

A thin, leather-covered note-book about 7 x 4 inches in size, with checked paper, is convenient. For very long trips note-books should have extra leather envelopes. A few postal cards, a couple of stamped envelopes, and a few sheets of paper are good to have. The envelopes are best made of linen, in case a letter is sent out of the woods in a guide's pocket. I take a Waterman pen and a couple of pencils, one a marking pencil which writes indelibly when moistened. A miniature diary containing the record of sunrises and sunsets and the tides will be important, especially if no watch is carried. If one carries the note-book on the person it should be provided with a case of leather or waterproof canvas. The envelopes, paper, and cards should be placed in a waterproof case and kept in the flap of the knapsack.

Reading Matter

There is little time to read in the woods, the book of nature being so voluminous and so fresh and new and fascinating. Nevertheless a small volume of one's favourite poet or story-teller should, for piety's sake, find an abiding place in the knapsack. For myself I take two kinds of literature, the first being represented by a small volume on some subject connected with the forest, such as Nessmuk's *Woodcraft*, Wells's *Fly Rods and Fly Tackle*, Van Dyke's *Still Hunter*, several scientific manuals of the Smithsonian and the British Museum, Chapman's *Handbook of Birds*, Gibson's *Camp Life*, books on trapping and photography, some sporting

catalogue, and many other such. Besides one of these I generally take either a tiny volume of Burns or Heine or Drummond (the poet not the preacher!), or else a French novel, such as some yet unread romance of the elder Dumas, the charm of such a book being that one is translated to a totally different world, only to be reawakened in the one so many of us love best, the forest more or less primeval. It is a delight to be called from the court of Henry III. or from the clash of blades at Blois by a chipmunk running over your legs or the "Oohoo!" of an owl above your head. Another way to collect camp-literature is to lay aside any interesting newspaper articles or stories that look promising. A wad of them fits into the flap and takes up but little room; they may be abandoned when read or in the way.

Playing Cards

A pack of cards (kept in a stout case) is the source of lots of fun, especially if the party consists of the ideal number, four. Guides usually like a game at Pedro and two rival pairs can fight out many an amusing rubber of an evening. If there are any chess experts in camp a pocket board may be included.

Wind Fuzees

A few boxes will be found convenient for storms or to light the pipe in the canoe in a wind. The wax fuzees are the best.

Repair-kits

Of repair-kits I confess to no less than four, though for overland journeys I combine them into one. The first, which however is carried in the camp-kit or war-bag, is the ordinary handle tool-kit, the various tools (gimlet, reamer,

chisels, awl, screw-driver, etc.) fitting into the small end when used. The second, which is but an experiment and really makes the first unnecessary, is the Napanoch kit, consisting of a jackknife into which fit, strongly and well, a saw, reamer, chisel, file, etc. I found it a good thing. The third is a japanned box about six inches long, the contents of which are my especial joy. Originally the box contained a fisherman's repair-kit, with wax, silk, tiny scissors, cement, file, extra rings, tips, and guides. These things are still in it but in the course of time many other small articles have been added, such as eyelets, grommets, tacks, fine wire, tweezers, sealing-wax, and what-not. The whole collection forms for me that "ridiculous item of outfit" which Stewart Edward White rightly asserts that no woodsman is without. My fourth kit is a simple little thread and needle case, containing several kinds of silk and thread (a few feet only), and a small assortment of needles and buttons, as well as a shoemaker's needle, some waxed ends, and a few glove-fingers for cots. Of safety-pins a supply should be taken, and I carry half a dozen stout ones pinned to the inside of my vest. In my knapsack are a few giant safety-pins for tent or blanket.

Sandpaper

A few sheets of different coarseness may be taken in the knapsack flap, together with a sheet of emery cloth. They will come in very handy.

Most of the other articles mentioned in the list as possible candidates for the knapsack depend upon the season and the object of the outing, and are described under the headings of the sections to which they more properly belong.

The War-bag (Duffle-bag)

On hard trips, when everything must be carried on the backs of the party, extra duffle may be packed between the blankets or in the sleeping-bag, but on ordinary tours it is generally stored in an extra receptacle called the war-bag (duffle-bag, wangan-bag, dunnage-bag). This may be of any character, but is best made of heavy waterproof canvas. Those who are not ingenious enough to manufacture such a repository are strongly recommended to purchase one of a dealer, as there are several on the market that are much better and more durable than any that can be turned out by an amateur or ordered of a sailmaker. These are made of brown waterproof canvas with protection-cloth and running cord at the mouth, and are of various sizes. One 36 inches high, 18 inches wide, and weighing about 2¾ pounds costs from $1.50 to $3.00 according to the quality of the material. Even the cheapest is good. A locking device, consisting of a brass spindle passing through grommets and secured with a padlock, can be had for $1.00 extra. There is a handle of canvas at bottom and on one side. Bags of rubber cloth are cheaper but far less durable.

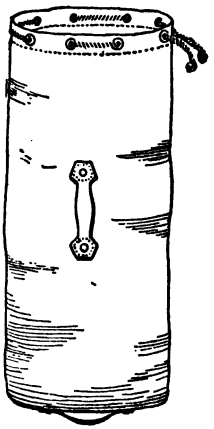

FIG. 5.—War-bag

The contents of the war-bag consists of extra clothing and everything else that cannot be packed elsewhere or must be kept dry. Mine has contained at different times oilskins, extra clothes, films, arsenic,

boot-grease, bird's-egg boxes and other things needed in collecting, folding lantern case, sponge-bag, etc.

One good-sized war-bag is generally large enough to contain the extra dunnage of two persons, or even three at a pinch.

Bedding

This is a question of blankets or sleeping-bags, as cot-beds are too heavy and bulky for any but permanent camps, where the "Gold Medal" folding variety may be used to great advantage.

Blankets

Most old campers (usually, I think, from habit and ignorance of modern improvements) prefer a pair of blankets to a sleeping-bag. The blankets should be of good size and closely woven. Among the best are the U. S. Army, the Hudson Bay Company's, the California, and the Mackinaw. In summer one will do if you want to go very light and can put on an extra suit of underclothes at night, but a pair of light weight will be safer. With them should be taken a waterproof cloth of some kind to wrap round them. A light poncho will do the trick, and it can be spread on the ground at night to keep out moisture. One advantage of blankets is that, in high latitudes two friends can "double up" and keep each other warm. A few giant safety-pins will turn the blankets into a sleeping-bag on occasion. But why not take the sleeping-bag anyhow?

Sleeping-bags

Let us examine the chief objections. A sleeping-bag is heavier than a thick blanket and even than two. Granted, though the difference is very slight. It is more expensive. Granted again, and this is a real disadvantage. Mr.

Kephart quotes an Antarctic explorer to the effect that sleeping-bags become heavy with moisture and remain so. Now this may be so in the polar regions but certainly not in the north woods. Mr. Kephart also says: "It is not so snug when you roll over and find that some aperture at the top is letting a stream of cold air run down your spine, and that your weight and cooped-up-ness prevent you from readjusting the bag to your comfort. Likewise a sleeping-bag may be an unpleasant trap when a squall springs up suddenly at night, or the tent catches fire." Now I have always looked up to Mr. Kephart as a woodsman *sans reproche*, but I am forced to believe that he has never made fair trial of a good sleeping-bag; for, if there is one thing a bag does *not* do, it is letting in streams of cold air down your spine, and, to me at least, it almost goes without saying that a man is wrapped up much more tightly in blankets than in a bag, and hence far more helpless to rearrange his bed without pulling things to pieces. It is just precisely the ability to turn over in comfort that makes me love a sleeping-bag, and this springs from its general "stay-putedness." As to the stuffiness of a bag I confess I have yet to discover it. A proper bag opens down the side and ventilates easily. It is a little more difficult to air out in the morning but not much. The comparison with a rubber boot is most unjust, and though harder to get into, it takes no longer to do so than to wrap oneself up properly in blankets. As to getting caught inside if a fire breaks out, I will engage to get outside of mine in less than three seconds if necessary. The sleeping-bag has come to stay; my Indians have made themselves a couple out of blankets and waterproof canvas. Mr. Kephart

asserts that the waterproof cover is no substitute for a roof overhead on a rainy night; and yet I can assure him that I have slept out in mine without a tent many times in hard rain without getting wet in the *slightest degree*, except when rising. Imagine, if you please, the state I should have been in with blankets only. A lean-to of some kind would have been imperative and even then misery would have been the result. Of course spending the night without some kind of a shelter is not to be recommended, but my experience shows what the bag is capable of.

There are two good varieties of sleeping-bags, the regular and the pneumatic. The regular bag consists of a waterproof outside covering with a broad flap at the top, which can be turned down over head and breast or erected on sticks to shed the wind. The inside consists of one or more pure woollen bags cut the exact shape of the cover and laced down one whole side and sometimes round the bottom to allow easy airing and proper ventilation. The sides are often provided with snap-buttons which are quickly adjusted and as quickly broken open. The best sleeping-bag I am acquainted with of the regular pattern is the "Johnson," the cover of which measures seven feet by three feet. It laces up as described above with a device which renders the operation a quick one. It is sold with any number of inner blankets, which are soft and not thick, on the theory that several thin layers hold the heat better than one of their combined weight. Three of these inner blankets are right for spring or autumn, two for summer, and four or five for winter. An advantage of this many-layer system is, that one can make his bed according to the temperature. Thus with the No. 4 "Johnson"

bag, which has three inner blankets, the user may have three thicknesses under and three over him, or two over and four under, or one over and five under; the more thicknesses there are underneath the cooler yet softer will be the bed. The No. 4 costs $13.75, and No. 3, with four blankets, costs $17. The former weighs twelve pounds. Another well-made bag is the "Kenwood," which has the opening in the top instead of at the side. Its blankets are woven nearly to the top, which renders ventilation more difficult. A very

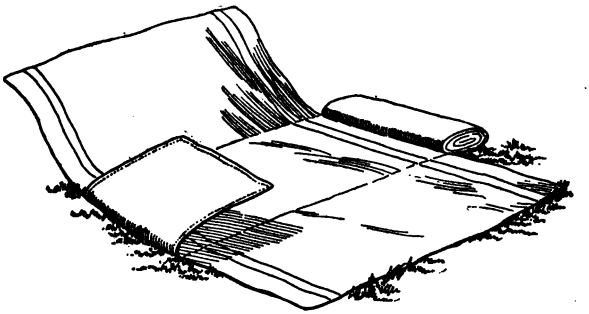

FIG. 6.—Carry-all Sleeping-bag

excellent bag, especially for warm weather, is the "Gold Medal" Camp-Combination (Carry-All), which, when spread out, has the shape of a Maltese cross. The sleeper lies on the central parallelogram, pulls the bottom flap up over his feet, then the two side flaps, one after the other, over his body, and finally, if desired, the top flap (which is pocket-shaped, so as to be stuffed out as a pillow) down over his head. The Carry-All is lined with one blanket, either heavy or extra-heavy, and is waterproof. It is furnished with grommets, so that it can be slung on side-poles or suspended as a hammock. It is very easy to get

out of, as a toss to right and left leaves the body free. It is significant that when I offer a guide the choice of sleeping-bags, of which I possess a number, he will generally take the Carry-All, which, indeed, is second choice, as he well knows that the "Comfort Sleeping-Pocket" is reserved for the exclusive use of the "old man." This bag, without which youngsters can get on quite well, is an expensive luxury, but, beyond that, has no faults save one: the "old woodsman" will turn up his nose at it (and its user), for—whisper the heresy with bated breath—it is an air-bed! I said it had no other fault but the cost ($25.00). This is not

FIG. 7.—Comfort Sleeping-Pocket

strictly true, for the Pocket is a little heavier than most camp-beds, weighing eighteen pounds, a fact which renders it unsuitable for overland trips without pack animals. It consists of an outside waterproof covering with top flap, one side buttoning with snap-buttons, the covering being blanket-lined and containing an air-sack three inches deep of strong rubber. No extra blanket is furnished with the Pocket, but a light one may be inserted. A pump comes with it, with which it can be inflated in a few minutes, or it can be blown up with the mouth, which I rather prefer. It certainly does take some moral courage to perform the operation of inflation in the presence

of several jibing "old campers," but when finished and you ask them to recline for a moment, they go back to their always carelessly made bough-beds with envy in their eyes. Hitherto I have found air-beds too cold, as they contained too many cubic inches to be warmed by the body, but the Pocket is thinner than the others and is consequently easily heated by the body, and it retains the heat well. Like all "old campers," I have always entertained a prejudice against air-beds, which seemed to me to smack all too much of effete luxury, but I confess to having conquered this prejudice. The longer I roam the woods the more thoroughly convinced I become that the most important feature of camp life is the night's sleep, and my recollection fairly swarms with the anathemas of guides and friends, who, too proud or too lazy to build a proper bough-bed (a task involving a lot of work), cursed "that blamed rock" or "that darned stick" that was just under some tender spot in their anatomies and seriously disturbed their slumber. Give a man a good bed and he will do more, do it better, and have a lot more fun doing it than his neighbour who throws himself down anywhere and upon anything, just because he has schooled himself to bear with (but not to *disregard*, look you!) the sticks and stones and humps and roots which make a smooth place a rare thing in the north woods. It is an interesting, a meritorious task to live comfortably in the woods with the very least possible help from civilised appliances, and if the object of your outing is principally to do that, then the cant phrase "playing the game fairly" would be appropriate and you would not only leave air-beds at home, but also waterproof tents, breech-loading rifles, jointed fishing-

rods, yes, let us be logical,—friction matches, cooking-kits, and all clothes save those of skin! The *reductio ad absurdum* shows that it is a question of drawing the line. The man who prefers to go into the woods with one blanket, the clothes he has on, and the provisions he can carry on his back, two cooking and eating implements, a piece of fish-line, and his rifle and axe, in order to "match himself against the forces of nature" and win from her by his woodsmanship a comfortable existence, is quite justified in his undertaking and plays a fascinating though arduous game. But he will have little time for anything but the scratching for food, fire, and shelter. Most campers are not out for this purpose, but to breath the pure air, to hunt, to fish, to botanise, collect, photograph, to paddle, to walk, to see the country. For my part the making of a bough-bed has ceased to be anything else but a disagreeable necessity; I would rather spend a half-hour (and in less time no decent bed can be made) in preparing the supper, or making notes, or cruising about camp before dark to look for signs of animals, or fishing the nearest pool, or rustling wood. In a word it is as time-savers, as well as comforts, that modern improvements are to be looked upon. This is one advantage of the Comfort Pocket. You unroll and spread it out in the tent anywhere, only throwing out large stones and sharp roots, inflate it, and a soft, warm bed is assured you. The degree of softness is regulated by the inflation; if just right the bed will yield to your every movement, shoulder and hip find ready-made those little excavations that old campers sometimes dig for themselves in the ground under their blankets. The Pocket is hard to puncture, the

rubber itself and the covering being very tough. Sparks are its chief enemies. I used one for a year, sleeping in it for perhaps 150 nights, and it seemed to be in perfect condition at the end. The only thing that disturbed my slumbers was the thought that I was a brute to enjoy it all alone, and the sneaking idea, born of many years of roughing it, that I had no moral right to be so thoroughly comfortable in the woods! In it I slept out a half a dozen nights in autumn and several times snuggled down deep, pulled the top flap over me, and laughed at the hard cold rain pattering on the cover. In the morning the flap was frozen stiff but I had passed a comfortable night, being, of course, provided with warm underclothing.

Fur-lined sleeping-bags are rather warm for any season but winter, besides being heavier and less easy to ventilate. A good bag may be made from a nine-foot down quilt (often to be picked up shop-worn at a low price) folded and laced round the bottom and part of one side. It should really have a waterproof cover, which the camper may make himself if he is ingenious. It may be cut from so-called balloon-silk (close, thin cotton) waterproofed (see *Waterproofing* under *Tents*).

The sleeping-bag cannot be kicked off like blankets and it may be used in place of the war-bag, to hold extra clothes, sponge-bag, towel, etc.

I mention these because I usually pack them in my sleeping-bag, the sponge-bag folding in the towels.

Sponge-bag Towels The bag should be a stout one. In it are a very small sponge for the face, a rather larger but yet small ditto for the body,

the tooth-brush inside a bag of its own, a stout nail-brush, a piece of pumice-stone, and a half cake of soap in a celluloid case, the other half being stored as reserve in the war-bag. Tar soap is recommended for fly-time, or, if the odour is not liked, hand-sapolio. One towel, which can be washed often, is enough. The best is an old and soft bath-towel of unbleached linen colour. A special face towel may be taken if desired. Tooth-paste in tubes is best. The sponges, or one of them, may be omitted; in fact toilet articles are quite a personal item. I have often limited them to comb, tooth-brush, and soap.

Sheepskin

A soft lambskin or sheepskin is an excellent thing to take in case a single blanket is used, making a soft and warm bed.

Pillows

Inflatable rubber cushions I personally hate. The Sleeping-Pocket is furnished with one, but I leave it at home. A small linen-covered hair or down pillow may be taken on easy trips to make a smooth top to a bunch of spare clothes. If you cannot swim and are likely to cross big lakes a rubber cushion, one of the kind with a life-line round the edges, will not be out of place. The best pillow is a fifteen-inch bag made of denim or brown linen left open at one end, which is furnished with a pair of short tapes. This is filled on the tenting ground with balsam tips, exhaling the sweetest, wholesomest odour in the world. If no balsam is to be had any other filling will do, extra clothing being the usual substitute.

Leaving the air-bed out of the argument the most

suitable forest mattress is the browse- or bough-bed (see *Making Camp*). In regions where this cannot be counted on, a portable bed-tick, a trifle less than three feet wide and six and a half feet long, is convenient. This is filled with moss, leaves, clothing, or anything else that is suitable. Perhaps better is the double endless bag, made of light duck or canvas, seven feet long, which is filled with hay, leaves, browse, or clothing and either laid upon the ground or stretched on two stout poles thrust through the sides and fastened to logs at head and foot.

Mattresses

Some campers take along a haversack or cartridge-bag carried at the side by a strap round the shoulder. Such a bag is convenient, but the many large pockets with which the sportsman should be provided rather obviate its necessity.

Haversack

SPORTING ARTICLES

These vary with the tastes of the camper. Firearms for warm-weather trips have been discussed already. Fishing-tackle will come under *Angling*.

CHAPTER IV

WOMEN IN THE WOODS

THE average woman of 1830 had a traditional dread of everything mannish; she cultivated the languid; her appetite was rather delicate; she was given to fainting. If she could have foreseen the Yankee girl of 1908 she would have believed that the Amazons had returned to life and emigrated from the banks of the Thermodon to people the United States. And of a truth the girl of the day is a different being from her grandmother, taller, stronger, healthier. All she has lost is just a bit of womanly tenderness, after all a real loss, but more than compensated for by her gains. She has been benefited even more than her brother by the "nearer to nature" movement, and sports have become almost as much a part of her life as of his. There is no reason why she should not imitate her ancestress who accompanied her husband into the wilderness and there carved out a home. Camping-out may be made as easy as one likes, and her participation in the more strenuous phases of forest life, as big game hunting, or mountaineering, may depend alone on her physical prowess. One other thing, however, she will probably do well to consider, namely, the question whether or not she is really wanted on the trip; for there is unfortunately a very large class

of male sportsmen who absolutely refuse to be "bothered by women-folks in camp." It must be confessed that in too many cases a man takes his ladies into the woods entirely on their account, from a sense of duty, and that ladies in the majority of cases are really a bother, for they require, tacitly if not actually, constant attention of one kind or the other, and their comparative lack of mobility hampers the movements of the party. I say "in the majority of cases," for women there are who fall in with forest ways so readily, and who help themselves, and understand how to make the men feel at liberty to do what they like without regard to them (all in reason of course), to the extent that the lords of creation at the end of the trip vote them "bricks" and "not a bit in the way." That is high praise for the woman camper, which she should strive to merit.

The important thing to cultivate is independence. Let the men of the party once discover that the lady does not require to be mollicoddled or waited on all day long and that she is a "good sport," which is another way of saying that she takes everything as it comes, and her path will be easy, as well as that of her male companions. But from the nervous woman, or the petulant one, or her who screams at sight of a mouse or an innocent daddy-longlegs—good Lord deliver us! It is mostly a matter of that first of social qualities, tact. Blessed is she who is helpful without seeming to interfere; happy is she who is not afraid that her hands will roughen, her feet grow broad, and her crow's-feet deepen.

Several women with experience in camping have favoured me with their views, and the gist of their

wisdom follows. It is understood that spring and summer are the seasons in question.

LADIES' CAMPING EQUIPMENT

Outer Dress: Full duxbak or khaki suit with fairly short skirt; extra cloth skirt; brown or dark grey knickerbockers. Silk neckerchief. Canvas leggings.

Underwear: Two or three sets medium weight combination flannels.

Shirts: Grey flannel shirt, similar to men's, with watch-pocket in breast. Sweater.

Stockings: 3 or 4 pair coarse cotton (or silk or light wool?) for high boots. Heavy wool stockings for moccasins.

Headgear: Felt hat with stiff brim (to keep veil from face) or straw sailor-hat. Dark chiffon veil. Black silk head-net.

Gloves: Pair of thick chamois. Rubber gloves if much washing or other camp-work is to be done.

Footwear: High waterproof lace-boots for tramping. Moccasins for canoe. Felt slippers for camp. Knit bed-socks.

Toilet-articles: Tooth-brush, tooth-powder, hand-mirror, brush and comb, soap in celluloid case, leather bottle-case, sponge-bag.

Medicines, etc: In bottle-case: Pond's Extract, brandy, Jamaica ginger, vial ammonia, soda-mint tablets, cold-cream.

Specialties: Rubber wash-basin. Two small nesting pails for hot and cold water. (Here the author raises his eyebrows!)

Waterproofs, etc: Yachting oilskin jacket. Light-weight rubber poncho. Rubber hood with cape.

A word in regard to appearance. Men like women to be real women, to be modest, and to be as good-looking as they can be. Modesty is not so much a matter of dress as of demeanour. One woman can wear knickerbockers without a skirt and appear perfectly natural and modest while another—simply can't. But, in the name of all that is beautiful and practical,

do not wear those things called bloomers, great formless baggy balloons, that are as ugly as they are awkward. Knickers should be well-fitting though loose and easy and should be gathered below the knee either by straps or light elastics.

CHAPTER V

CAMP BAGGAGE

TENTS

For the average temporary dweller in the wilderness his tent will be his home and therefore shares with his bed the honour of being the most important feature of the camp. For permanent camps tents made of canvas (8- or 10-ounce duck) not waterproof may be used, as they can be furnished with a "fly" to stretch over the top, which sheds rain and, on account of the current of air between tent and fly, makes the former cooler. Wall-tents with windows are best for permanent camps.

But we are now concerned more with shelters which must be taken with us, and therefore, to save weight, no fly is used, but the tent is made of some waterproof material, by far the best being the so-called "balloon-silk," a thin but stout and durable Egyptian cotton-duck, which, in its waterproofed state, was first used by the firm of Abercrombie & Fitch in their tents. These "silk" tents cost more than most others but last longer and weigh from one third to two fifths less, besides being less bulky. They may now be found in the catalogues of several dealers who have imitated the originators.

There are many different varieties of tent, and

each has its devotees; it is pretty generally a matter of locality.

A tent for general use at all seasons in the north woods is hard to designate. Perhaps the lean-to (Baker or shelter-tent), with a front capable of being fastened down so as completely to close the tent in stormy weather, would be first choice. But nearly every woods-dweller who comes from civilisation can get away during one season only, spring, summer, or autumn, seldomer in winter. Many years' experience have brought me to the conviction that for spring and summer the best tent is the wall-tent, unless extreme lightness of kit is a necessity, in which case an A-tent is the thing. For autumn the lean-to as above described is best. If it were not for the prevalence of insects and rains during spring and early summer I would never use any tent but the open lean-to, but facts are facts, and one of them is that in the roomy wall-tent you can fight flies and keep out rain better than in a shelter more open to the elements. Moreover nowadays wall-tents are made with windows and are thus less stuffy than of yore.

The Ideal Wall-tent

The ideal wall-tent for two persons (big enough for three) is the 7½ by 9 feet "waterproof silk," with back window of bobbinet which may be closed with a flap, and a 9 inch sod-cloth running round the bottom edge inside. Poles, stones, or camp stuff, guns, etc., are laid on the sod-cloth, keeping out weather and insects. (See tent on the left in the frontispiece.) The usual tent has a simple slit down the front as a door, but my mosquito-proof tent has an oval opening covered

POSTPRANDIAL JOYS

with bobbinet, which may either be drawn together in the middle like a spider's web by pulling on a cord, or, as may be seen in the picture, tied back round the edge, allowing free passage, except that one must pick up one's feet at the "threshold." The opening is also covered, when wanted, by a flap of the regular material. It will be seen that Mr. S. E. White's objection, "fitting tightly enough so that you have almost to crawl when you enter, and so arranged that it is impossible to hang it up out of the way," is hardly just. Mr. White recommends rather an inner tent of cheese-cloth made without any opening whatever. This is suspended from the ridge-pole, slung aside when not needed, and dropped when you go to bed. Cheese-cloth tents of this kind can now be bought ready-made. Be sure to kill all insects after drawing the netting for the night. You will have to chase the "skeets," while the midges will be mostly found on the front of the tent, down low, and the black flies at the top in the lightest, warmest corner. (Those interested in midge-proof tents may consult the article by Mr. H. W. Van Wagenen in *Forest and Stream* for June 2, 1906.)

The wall-tent in our frontispiece weighs 11 pounds and costs, without window or netting door, about $20.00. Door and window will bring the cost a few dollars higher. The same tent for two persons, 7½ by 7½ feet, weighs 9 pounds, and costs, without "fixin's," about $16.00. In the A form, which does not give quite so much room to move round in, the smaller tent weighs 7½ pounds and costs $13.50. The A tent may be furnished with a 25-foot ridge-rope, by which it can be suspended between two trees. The rope may be made tauter by forked

poles just outside the tent ends. Where no trees are available the two ends of the rope may be made fast to stakes in the ground and braced up by the forked poles.

The proper manner to set up a wall-tent, and, in case no ridge-rope is used, also an A tent, may be seen in the frontispiece. It will be noticed that, instead of the usual perpendicular pole in front, the ridge-pole is supported by two crossed slanting poles, in this case the setting-poles of our two canoes. The entrance is thus left unimpeded. At the back the usual single pole is used. The operation of actual setting up is described under *Making Camp*.

Lean-to Tents

In the autumn, when the flies have ceased from troubling, the lean-to is the best forest home, at least for temporary purposes, and merits its popularity with most woodsmen except perhaps on a rainy day, when a closed tent has its merits. The principal advantages of the lean-to are its airiness and warmth, as it absorbs by reason of its slanting roof the heat of the camp-fire in front. A glance at the tent on the right of the picture already mentioned (frontispiece) will show the construction of a lean-to, or Baker tent, which is about 7 feet high at the front and 2½ feet in the back wall. It has a front wall, thrown or rolled back (as in our picture) in fair weather, which reaches to the ground and can be buttoned to the side triangles in a storm, making a completely closed tent. In a light rain, or to keep out a too ardent sun, this flap may be stretched out horizontally in front, forming a kind of portico, the corners being attached to poles. The 7½ by 7½ silk lean-to costs $18.00 and weighs 10 pounds. The

9 by 7½, which costs $20.00, is quite large enough for four persons, provided a tarpaulin or other shelter is taken along for the provisions and other extra baggage. I have often been one of four in the smaller size, though it must be confessed that there was no more than room to sleep. Two tents had better be carried if the party consists of four or more, in which case one alone will do for short side trips.

Since the A, the wall, and the lean-to are the most suitable tents for the north woods, there would appear to be no reason to describe the many other varieties such as the Sibley, the Protean the "poleless," the miner's, the "vestibule," the

Other Tents

FIG. 8.—Frazer Canoe-tent

Indian teepee, etc., descriptions of which may be found in the dealers' catalogues.

The Frazer canoe-tent, mentioned by Mr. Perry D. Frazer in his *Canoe Cruising and Camping*, is

primarily a one-man tent, though there is room for two to sleep on the ground if must be. It is a conical tent with steep sides, thus shedding rain, though not of waterproof cloth, and has a flap on one side that opens as a door. It is easily set up and not heavy. The price is about $12.00. (Apply to Hemenway & Son, 54 South Street, New York City.)

Canoe-tents

For a fast trip through the woods, as in prospecting or scouting for game, a small tent is of advantage, the dealers having a variety. If a cot is preferred the combination cot and tent sold by the Gold Medal Company is the best I know, folding up into a space 38 inches long and 8 inches square.

One-man Tent

Never take ready-made poles, stakes, or pins into the woods, as they are better cut on the camping-ground. In treeless regions it is different.

Tent Furnishings

A bag of drill, gathered with a cord at the top, should be provided for every tent. It should be made big enough to contain extra articles if necessary.

This is really a misnomer, as no tent is a proper habitation for the north woods winter. Nevertheless they can be, and often are, used at that season. I have spent some weeks in late autumn and early winter in a "waterproof silk" wall-tent, in fact the one described above. It is provided with an asbestos-rimmed stove-pipe hole. A stove is necessary. In very cold weather one must be careful in folding waterproofed tents,

Winter Tents

as they easily break. Warm them slightly therefore before packing.

Tent-stoves

For a tent not larger than 9 by 7½ the stove should be small, in order not to take up too much room. I have used the common round pot-stove, 11 inches in diameter, with one hole in the top, and found it sufficient to cook on and a good deal more than sufficient as a heater. In fact the worst thing about a tent-stove is that it blows hot and blows cold alternately, but is extremely difficult to keep temperate without constant attention, as the fire burns out so quickly. Hence you may go to sleep with the mercury at 80 and wake up in a couple of hours to find it 10. The secret is to get the hang of the door and damper, so that the fire will burn slowly, and to have a supply of good hardwood cut the proper length. A bed of small stones and earth may be laid for the stove to stand on, and stones should be built up round it to prevent the bedding or browse from catching fire, as the stove gets red-hot in a jiffy. The pot-stove described costs $3.00, with four lengths of two-foot telescopic stove-pipe. It has no bottom. There is also a folding camp-stove oblong in shape and having two top holes. It folds into a space 27 inches long, 12 inches high, and 1 inch wide, and weighs in its canvas case 13½ pounds in the smaller size. The price is $5.75. It has no bottom, a steel bottom with legs costing $2.50 extra, but it is not necessary if a proper rock or clay bed is made for it. Another variety is the box-stove, which does not fold and costs one dollar less. The pipe-lengths of these stoves fit into each other, the lower one being provided with a spring damper. With the stoves may be used

an oven for baking and roasting, which fits on to the stove and is heated by the smoke and heat of the fire passing round it.

Tents, or indeed almost any fabric, may be rendered waterproof and practically spark-proof as follows:

Waterproofing Dissolve ½ pound powdered alum in a bucket (say 4 gallons) of soft boiling water, and in another receptacle ½ pound of sugar of lead in the same quantity of water. When dissolved and clear, pour first the alum solution and then the sugar of lead into another vessel. After standing several hours pour off the water, letting any thick sediment remain, and soak the fabric thoroughly in it, kneading it well. Wring out only slightly and hang up to dry.

Waterproofing may also be done with paraffine, but this process does not protect the fabric against sparks so well as the former. The paraffine may be rubbed or grated on to the cloth laid on a table and a moderately hot iron does the rest. A more thorough way is to dissolve the grated paraffine in benzine or turpentine and apply with a stiff brush to the stretched fabric.

Some recommend colouring tents a light tan in order to be less easily seen, cooler, and less attractive

Tinting Tent to flies. Mr. Kephart says that this can be done with a dye made of 2 pounds white oak bark in 3½ gallons of boiling water. Or a commercial dye may be used. It should be done before waterproofing. The ideal summer tent would have a dark roof and light sides.

When a single tent is taken and sidetrips of the

duration of only a day or two are projected, a fly which can be used as a shelter is very convenient. It should be made of some thin but stout material, No. 1 Egyptian sail-cloth being the best, and waterproofed. (See page 70.) Eight by nine feet is a good size, and the fly should have grommets at each corner and at frequent intervals along the sides, or steel rings strongly sewed on. In each corner-grommet may be fastened a small rope about 4 feet long. When at the main camp this fly may be used as a dining or storage canopy (see illustration opposite page 70), while on side trips it serves as a tent, put up lean-to style, or, for one man, like an A tent, with one end pinched in and closed. On canoe journeys it is spread over the duffle.

Fly as Tent

Unless your tent is provided with either a netting-door or an inner tent of cheese-cloth or bobbinet, it is advisable in fly time to have some kind of a mosquito-bar. This should be an individual article unless large enough to cover the whole inside of the tent. The single bar may have a top consisting of a small hoop, perhaps a foot in diameter, covered with cheese-cloth, the net, composed of the same material, falling in the shape of a bell about 4 feet long and the same wide, the bottom edge being weighted with half a dozen buck-shot sewed into a tape. The hoop is suspended at the proper height from the ridge-pole, the net falling over the head and across the waist. Common mosquito-netting is too coarse to keep out no-see-ums or small black flies. I have found a head-net fairly efficacious, but not when it happened to touch the face.

Mosquito-bars

Ground-cloth

A ground-cloth of brown waterproof canvas, large enough at least to cover the space in the camp between the beds, is a luxury, especially in a wet season. It is taken up during the day unless the ground is damp. It costs about $.06 per square foot. If a poncho is in the party it may be used nights as a ground-cloth.

TEMPORARY CAMPS

If trips of short duration are undertaken in such light marching order that not even a fly is allowed to burden the kit, it is necessary to knock up some

FIG. 9.—Frame for Lean-to Shelter

kind of a shelter for the night. In the case of a man with a waterproof sleeping-bag with broad head-flap this need not be more than a wind- or rain-break. If a fly or poncho is taken it is set up on a frame consisting of two forked uprights connected by a

cross-pole, and a slanting pole running down to the ground from each fork, with perhaps a third in the

FIG. 10.—Poncho-Shelter

middle. Shorter forked poles braced against the side-poles keep the frame stiff and strong. If no artificial shelter is taken a frame similar to the above is made and the space between the two (or three) slanting poles (covered in the lean-to by canvas or poncho) is filled by laying parallel poles closely over it, the whole being then thickly covered with evergreen boughs. If an old, easily peeled hemlock is available, and there is time, cover the poles partially with bark before adding the boughs. Fill in the sides with boughs, or small, thick evergreen trees, and you will have a very comfortable camp, which will be rendered glad and warm by the camp-fire in front. A somewhat similar camp, suitable for a single person, is made by felling a hemlock,

cutting at about 4 or 5 feet from the ground, leaning the trunk firmly and safely on the stump and filling

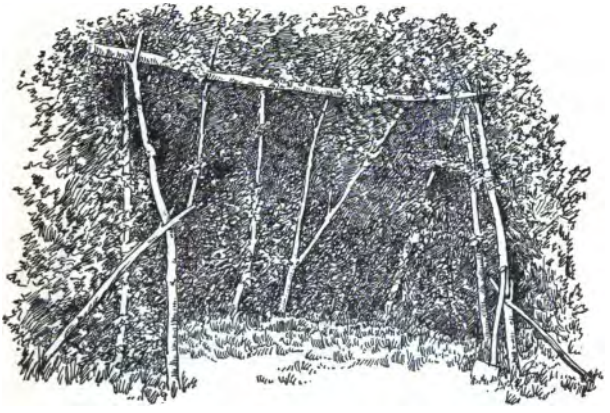

FIG. 11.—Bough Lean-to

in one side with the limbs and boughs cut from the side destined for the front.

CANOE–SHELTER

This consists merely in inverting and bracing the canoe as a shelter for the head, evergreen boughs being banked thickly at the sides to break the wind.

If the weather looks at all threatening better take a fly, tarpaulin or poncho; the 4 or 5 extra pounds are likely to repay their transport well.

Tent-making

Persons of any skill and ingenuity can make their own tents, and I strongly recommend them to do so, especially if a good model is obtainable from which to copy. A third or more of the cost will be saved. The very best

material is No. 1. Egyptian sail-cloth duck, which can be obtained of Harrington, King & Co., 79 Commercial Street, Boston, Mass. It is 31 inches

FIG. 12.—Canoe-Shelter

wide and costs $.22 per yard. The other necessary materials are light canvas for binding, grommets, braided clothesline, etc.

FURNITURE AND TOOLS

Camp furniture may be divided into necessary articles, such as axes, cooking utensils, and pack-baskets, and more or less unnecessary ones, as chairs, hangers, folding tables, electric lamps, etc.

Axes

The longer a man lives in the wilderness the more he loves and depends on his axe, and he will usually lug one with him even for a single night, looking upon all hatchets as playthings. And it must be confessed that the only absolutely satisfactory instrument of the family is the big, long-handled axe, and a full-sized one should be taken along if the party contains three or more persons, necessitating the cutting of much wood. For small parties or on short trips a "half-axe" (2½ pounds) will do,

though a "three-quarter" (3 pounds) is better; in fact the three-quarter in the hands of a good axeman is a a pretty efficient weapon, and is quite large enough for warm-weather trips unless a cabin is to be built. Axe-handles made by manufacturers are nearly always too crooked, and the first thing a woodsman does is to "hang" the head on a handle of his own make. An amateur cannot do this, but he can buy the straightest handle he can find and see that it is in absolute line with both edge and back of the head. In a permanent camp have two axes; two men like to chop together; it is company and lightens the work. Besides it offers an excellent chance for the tenderfoot to take a valuable lesson in this difficult and necessary art. Imitate the guide and get him to criticise. It is hard work, especially until one gets the knack of it, but there is no exercise better suited to knit the frame together and strengthen back and shoulders. The axe is a dangerous implement in the hands of a duffer, who is always wanting to get hold of it and hack at something, to the detriment of the axe and the agony of its owner, who will probably have to devote the best part of an hour to filing down some nick in the edge. If you see such a man start "fooling" with a good axe (and no other should be in camp) face him with determination, even if he be your superior officer in everyday life, and offer him the choice of two alternatives: either to keep his hands off the axe or to proceed at once to learn how to use it under the eye of the best axe-man in camp. For not only the axe suffers but also its wielder, and even among old woodsmen there are few who do not carry a scar or two made by a glancing blow. Very few "city fellers" are good axemen.

Some of them may rival the guides in using the rod and gun, and can even tote as much and cook better, but when it comes to swinging the ringing steel nine out of ten have to "cry small." This is quite natural, for every guide begins to use an axe before he can lift it, and most have served an apprenticeship in the lumber-woods. On the other hand the sportsman, feeling his inferiority and not wishing to waste time (or show his weakness!), leaves all the heavy chopping to the guides and thus gets no practice in the art. But this is wrong. Take a few lessons, and while practising be sure to deliver the stroke in such a manner that, if the axe or hand slips, the edge will fly clear of your legs. Like fencing or billiards it can be learned, at least to a certain degree of proficiency, and it is as much a matter of knack as of muscle. The perfect judgment as to where to strike, the unerring eye and hand, the economy of every pound of muscle, the nice gradation of effort which might be called the dynamics of chopping, in a word the absolute ease and finish of the stroke—all this is indeed an art. There is nothing in the woods that so fills the amateur with despairing admiration and envy as the manner in which an old woodsman uses his axe.

Before starting grind your axe well or have it done for you. A new axe must be ground as well as an old one.

There is nothing to be gained by including in this manual elaborate rules for using the axe, as it can be learned solely in the woods and from experience, learning from and watching the work of a good axeman. But there is one golden rule: don't try to strike too hard a blow; be accurate first and increase the force only as you acquire accuracy. Get to know

the character of the trees in your region and the quality of their woods, especially in regard to cutting and burning. Do not leave an axe out all night if it freezes; the steel will become brittle. Avoid knots whenever possible.

Sharpening and Renewing Handles

Take with you a file (probably already in your fishing-tackle repair-kit) and a carborundum stone, with which, barring a very deep nick, you can keep your axe in good condition. A leather muzzle or case is recommended for the axe, to be used in transportation; I have seen both men and canoes injured by sharp axes in travelling.

To burn out handles sink the head in soft earth up to the handle and build a fire round it; it will not hurt the temper.

Hatchets

A camp-hatchet should be taken as an adjunct to the axe, for pitching tents, making brush-camps, cutting browse, splitting small wood, and general use about camp, as well as to take on side trips, for which reason it should have a leather muzzle with straps to attach to the belt. There are two varieties, the light and the heavy. The best of the light kind is the Marble Safety Axe, which is made of very excellent material and is small enough to carry in the hip- or coat-pocket, though better slung on the belt, where it is out of the way, except in sitting down, when it can be pulled forward so as not to interfere. The tomahawk shape is best for a light hatchet. The Marble, which has a safety guard fitting back into the handle when not in use, comes in 16-, 20- and 27-ounce weights. The heaviest

is the most desirable for real use in the woods. ($3.00.) There may be other light axes to be bought cheaper of dealers, but my experience with numbers of them has been unfortunate, as they either have poor and brittle steel or the handles are far too curved, the proper handle being nearly or quite straight, as a curved handle makes the hatchet awkward to use as a hammer. The Marble hatchet is provided with a nail-extractor, a handy feature.

The heavy variety of hatchets I personally prefer, for the simple reason that more can be accomplished with a heavier head, and they are but slightly bulkier than the pocket axe. A heavy hatchet should have a stout head weighing at least two pounds (I prefer 2½) and a 15- or, better, 17-inch handle. Such a one is the Collins, which, with leather carrying-case, costs $1.50. With it you can cut down good-sized trees if necessary, See that your hatchet is not too thin each side where the handle fits into the head; otherwise a smart blow with the side when driving stakes will likely crack it. The side is not the best place to hit with, but one instinctively uses it when, for example, the stake is thin or its top becomes smashed out broad. A good and slightly lighter hatchet is the "Peavey," weighing 1¼ pounds.

Tools

Saws, spades, and such implements should be left at home unless their use is foreseen, as in the case of building a cabin. A few rivets, washers, etc. will be contained in your knapsack tool-kit anyhow. Two items, however, should not be forgotten: a couple of dozen stout nails, say at least 3 inches long, and a coil of small rope, or braided cotton clothes-line, perhaps 20 or 30 feet. The nails

go into the bottom of the pack-basket, while the rope may be kept in the tent-bag, into which may also go a half a dozen raw-hide thongs.

Canteen

This is hardly necessary, but if taken it should be a good one covered with thick felt and over that brown duck. The canteen may be of aluminum if only for water, but alcoholic drinks should not be carried in aluminum. A good canteen is that approved by the army; it is provided with a strap to carry round the shoulder and costs $2.00.

Hangers

In one-pole tents, like the Sibley, patent hangers, for clothes, guns, etc. are handy, but have no place in wall-tents or lean-tos.

Ready-made Furniture

The north woods camper looks upon these things, such as folding chairs, table, shelves, and the like, with some disdain on account of their bulk. If you change camp often it is a bother to carry them, and if you make a permanent home most of them can be manufactured with the axe. (See *Making Camp*). One exception is perhaps the folding brown-duck water-pail. This, however, is also really unnecessary if the cooking and camping kit described in Chapter VIII is taken, for it contains three pails. The folding bucket is convenient when pack-animals are used. As for wash-basins and tubs, the north woods are full of them; they are

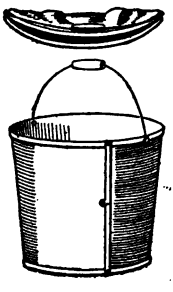

FIG. 13.—Folding Bucket

generally called lakes and streams. If the trip is an easy one with few and short carries a folding table is legitimate, as it is very convenient and saves time, but its proper place is in a permanent camp.

Lanterns

On easy trips take two lanterns for a party of four, one common round lantern with wires to protect it and burning kerosene, and a folding "Stonebridge" lantern which takes candles, but they must not be the common "wax" or tallow candles found in country stores, as these are apt to wilt in a "Stonebridge," but of the hard-pressed variety. See that they fit the lantern before buying. (Price, aluminum, $2.75 with case; steel $1.00 less.)

Either kerosene or carbide may be used in the big lantern, the latter being cleaner. Kerosene should be carried in cans with screw-tops and wrapped in a special cloth. It should not be kept near the provisions, for obvious reasons. For candlesticks see *Making Camp.*

Acetylene and similar lighting outfits are unfit for the woods on account of their bulk; and they smack too much of cities.

A small electric pocket lamp is convenient when you want to get up early and have to consult your watch. I have taken great comfort in one when moose-calling, as it saved repeated searching for and striking matches in the morning before crawling out of my bag. For ordinary trips it is an out-and-out luxury.

A woodsman of ingenuity can, at a pinch, fit himself out pretty well in the summer season with-

out recourse to the shops. Forks, spoons, and other implements are whittled out with the jack-knife and plates cut from the bark of the birch or hemlock. Flat stones may serve as plates and also broilers. A good spoon is made of a clamshell held by a split handle tied with string or a piece of spruce root. A good drinking-cup is fashioned of a parallelogram of birchbark twisted into pyramid form and fastened with a split stick. Do not, however, strain your confidence in its workmanship to the point of letting any liquid stand long in it.

Rustic Utensils

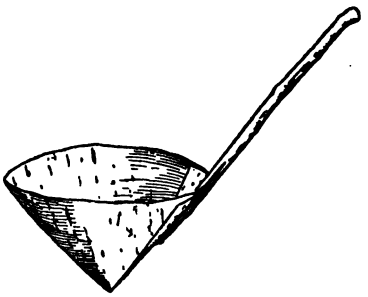

FIG. 14.—Bark Drinking-Cup

An absolute necessity in every camp is the pot-lifter, which is merely a green stick about 18 inches long, formed by allowing a few inches of a stout branch to remain. (See *Making Camp.*) It should be kept in a special place when not in use, to avoid useless searching. In a permanent camp a broom is a good thing. It is made by tying hemlock twigs round some kind of a handle and trimming them off.

With the aid of old tin cans several utensils can be manufactured, for instance a cup, a handle being fashioned of wire which is bound round top and bottom, the handle coming between. (For cooking-kits see *Cookery*).

BASKETS, CASES, AND HARNESSES

The pack-basket is the favourite carrying contrivance of the north woods, and rightly so, for it is the most convenient and the driest. It has a flat back to fit the carrier's person and straps to go over the shoulders, with sometimes an extra tump-line for the forehead. One variety, very popular in the Maritime Provinces, has a single broad strap which goes round the bearer's chest, but one must be accustomed to this from boyhood to overcome the feeling of oppression in the chest. Pack-baskets are to be found at any "jumping-off place," and are generally furnished gratis by the guides, but they are always of the common kind with no protection against the wet. The dealers offer a better one, though too high in proportion to its breadth, covered with waterproof canvas that will keep its contents dry even in a deluge. The best quality ($5.00 or $6.00) is provided with a locking apparatus. Nessmuk advocated the loose

Pack-Basket

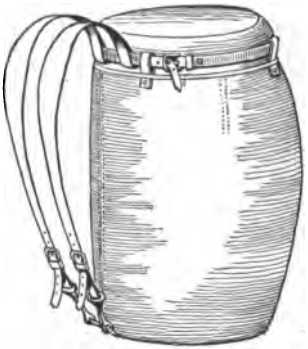

FIG 15.—Pack Basket

knapsack for carrying provisions, a very bad piece of advice.

Provision-Bags

Bags made especially for provisions, and designed to be carried in a pack-harness (see below), are also sold by the dealers. They cost from $.75 to $1.50, according to size. I much prefer pack-baskets. If chosen, the waterproof food-bags made especially to fit the harness are recommended. They are of several sizes, according to the kind of provision to be contained in each, and cost from $1.00 per dozen (holding 5 pounds) to $1.50 (holding 10 pounds). It will be necessary to have separate food-bags of some kind for the provisions. If made at home waterproof No. 1. sail-cloth duck is best.

Food-Bags

FIG. 16.—Pack-Harness with Food-Bags

They should be from 8 to 18 inches in length and wide in proportion, and should have running tapes at their mouths. Potatoes, onions, canned goods, etc. are usually carried in common meal-bags.

Pack-Harness

This is a combination of straps and canvas shoulder-piece which I never go far without, for you can pack anything in it—tents, sleeping-bags, provisions, etc. It costs, with tump-line, $2.75, and, if you plan to do much carrying, my advice is to get one, for you are then sure of a load that sits easily on the shoulders and is properly balanced. My fellow-guides said sarcastic

things about mine when I first produced it; now they borrow it.

Tump-Line

This head-carrier consists of a band of leather attached to two leather thongs. It is popular in Canada, but hardly elsewhere. If you buy one have its use carefully explained. The secret lies in the method of folding the pack to be attached to the thongs.

"Canadian Pack"

The pack and tump-line are advocated by those who aver that pack-baskets balance a canoe badly and have other disadvantages, which I for one do not admit. Mr. B. H. Mills, an admirer of the pack, thus describes it in *Recreation*:

FIG. 17.—Harness with Tump-Line

This is made with a pack-cloth six by seven feet in size . . . . To make the pack, lay your pack-cloth on the ground. Then stretch the two portions of the tump-line on the pack-cloth, the long way. each strap being about one foot from the edge, with a four-foot interval between them. The central portion of the strap, containing the head-band, lies on the ground at the head of the pack-cloth and beyond it.

Each edge of the cloth is now folded over the straps.

Next lay your duffle in as compact a pile as possible, soft things, such as tent and blankets, on top, the pile being near the end where the head-band is. Fold the loose end of the cloth over the pile, bringing the other end up to meet it. If the cloth is found to be too long, start over again,

folding the end of the cloth up to the proper distance before laying the straps on.

When the pack is folded, hold fast to the strap near the head-band, and pull on the loose end. The edge of the pack will shirr up. Tie a single running knot, and attach the other side in the same manner. Now bring your loose ends together in the middle of the pack, loop them, and pass them around the whole, tying a double knot—the only knot in the whole pack—a great advantage when one is unpacking.

Finally, adjust the strap to the head-band by means of the buckles, and your pack is ready to be carried. The head-band is passed over the top of the head, immediately back of the forehead, and the pack rests down on the hips.

It sounds hard, but it isn't, after you have tried it.

Travelling Cases

Telescopic cases of fibre for packing provisions and duffle by railway are convenient though expensive ($8.00). Common trunks are generally used. The cases are good to preserve kits in permanently.

In the woods I have always found a war-bag and a pack-basket sufficient, helped out, if the trip was by water, by a wooden box or two, into the sides of which holes for the hands have been cut.

CHAPTER VI

CANOES

ALTHOUGH the skiffs common in the Adirondacks are light and convenient craft and can be portaged with canoe-yokes, they are nevertheless heavier than canoes, are made of wood and thus tender and hard to repair, and they are propelled with oars, which are very awkward in rapids or among rocks. The proper pattern of canoe is the open, or Canadian, copied from the primitive craft of the Indians, since it is lightest, toughest, and will carry more than any other style. The Rob-Roy one-man style (both ends covered, the paddler sitting in a cockpit in the middle), propelled by a double-bladed paddle, is excellent for open streams, but far inferior to the Indian pattern for the woods, and especially among rapids.

Canoes made by the Indians have always been, and still are, constructed of birch-bark over an ash and spruce frame, while the white man has reproduced the pattern but changed the materials, one style being of cedar or basswood planking over a hardwood frame, and the other sheathed with cedar over a frame and the whole covered with filled and painted canvas. Of these three styles the all-wood canoe may be dismissed at once, as it is far too frail to risk in rapid water, and too difficult to repair. Indians and backwoodsmen have hitherto preferred the birch-

bark canoe, principally because they are most familiar with it and because of its cheapness. It is inferior, however, in nearly every way, to the canvas-covered cedar canoe, now the recognised craft of wilderness tourists. The latter is cheaper than the birch-bark, since it lasts much longer. Even when new the birch-bark is not so swift or easy to paddle as the canvas, owing to its rougher workmanship. It is easily lacerated and punctured, allowing the bark to become water-soaked, and the holes and lacerations must then be covered with strips of cotton dipped in melted resin. The result is that the birch becomes heavier and rougher every day of its life, while each new wound is an added weakness. Nor has it any seats. The canvas canoe is tougher, its lines are more graceful, and its wounds are more easily and permanently healed by the application of white lead and shellac, with a tiny strip of silk over or under a particularly bad cut. (See below, *Repairs*.) The predilection of certain otherwise excellent authorities for the bark canoe is inexplicable on any other ground than a lack of experience with the canvas. For those who know both there is no question whatever.

According to my investigations, the canvas-covered cedar canoe is a product of the State of Maine, having been first made on the Penobscot River about 30 years ago, the first covering probably having been put on over bark, for which cedar was soon after substituted as stronger and stiffer. E. H. Gerrish of Bangor is said to be the originator of the type. Among the most reputable makers at the present day are Rushton of Canton, N. Y. (beautiful and instructive catalogue); Gerrish Canoe Co. of Bangor, Me.; Old Town Canoe Co., Old Town, Me.; B. N.

Morris, Veazie, Me.; Carleton Canoe Co., Old Town, Me.; J. R. Robertson, Auburndale, Mass.; Chestnut of Frederickton, N. B., and others.

The canvas canoe has a frame of hardwood (oak, ash, cherry, elm), with white cedar ribs covered with a sheathing of the same material. This again is covered with cotton duck treated with some kind of filler, and is then painted and varnished. The gunwales are of spruce or cherry, and may be either solid or "split," *i.e.* made of two parallel strips, enabling the canoe to be quickly and easily emptied of water. Brass "bang-irons" protect the ends, and two cane seats are provided, generally built in solidly, one at the extreme stern and the other a little farther from the bow.

Size

The ideal cruising canoe will accommodate two men and a reasonable amount of duffle, say 300 to 400 pounds. One 16 feet long and weighing 65 to 75 pounds will do this with ease and safety. I have even used a 15-foot canoe on long tours and found it capacious enough, while its lightness (56 pounds) was a boon on portages. For short journeys, when little duffle is needed, a 14-foot craft will accommodate two men, but it is better to have a canoe that can be used for any kind of trip. On very long tours, especially when more than two men and an extra amount of duffle and provisions must be taken, 18- and 20-foot canoes are needed.

The general shape of the bow of the average canvas canoe is a compromise between the ultra-high, curved bows of some of the Western Indian craft and the quite flat bow of the typical Micmac canoe, though more resembling the latter. A slight rise keeps the

waves from coming too freely over the bow without offering too much freeboard to the wind.

Cost

Canvas canoes are made in two, sometimes three, grades, according to the quality of the material used and the finish. First-grade 15-foot canoes cost from $36.00 to $41.00; second-grade, $28.00 to $33.00. First-grade 16-foot, $38.00 to $46.00; second-grade, $30.00 to $40.00. The tendency of prices is to increase.

For longer canoes one may reckon $1.50 per foot over the 16-foot prices, though this varies slightly. The catalogues of the best firms should be consulted. Prices are without paddles. From $.75 to $1.25 is charged for crating, according to size.

Indians usually charge about one dollar per foot for a new canoe, though in some localities the price runs higher.[1] See that your craft is made with a good flat bottom; Indians are apt to make them too round. The bottom should be of one piece; otherwise it is very vulnerable.

Paddles

The choice of a paddle is rather a personal matter, as people differ widely in their likes. The stern paddle of a pair should be about 6 inches longer than that used in the bow. For stern paddle a tall person might prefer a length of 5 feet 9 inches, or even 6 feet; 5 feet 6 inches to 5 feet 9 inches is about normal, with the bow paddle shorter. Ladies and younger persons require shorter

[1] Mr. White says that a new bark canoe, with bottom of one piece, should cost from $6.00 to $8.00! Those prices must obtain very far in the West. In the East we know them not.

paddles. Woodsmen have been accustomed to using paddles rather shorter than these, perhaps because they generally make them of heavy woods, ash or even oak, but they are now taking to the longer lengths, just as they are to the canvas canoe. The accepted rule is that the paddle should be as long as the paddler is tall. Paddlers who habitually kneel need shorter paddles than others.

As to material, maple (or cherry) may be recommended to strong-armed persons; spruce to all others. The latter is not, as some think, a flimsy wood. I have personally used spruce paddles on long and rough trips, and have never known a good, selected one to break with ordinary wear, although, like any other, spruce will snap soon enough if you attempt to check a canoe among rapids by sticking the paddle between two rocks. In selecting a paddle get one that is not too slender just where the blade joins the handle, the weak spot.

As to the shape, some like a narrow and some a broad blade. A happy medium is the best. Narrow blades bring the balance in the proper place without adding weight.

Paddles are apt to "fur" off at the edge with rough usage; trim the "fur" off neatly. If spruce, keep the paddle well shellacked, to prevent water-soaking. Copper tips save the blades on hard trips, but are for ever coming off.

Keels

A hardwood keel is essential for every canoe going into rough water. Unless specially ordered makers do not furnish it. It should be about one half inch thick and 2½ inches wide at the centre, according to the size of the canoe, and

tapering toward each end, where it is screwed under the brass bang-strips. The other screws, perhaps 8 inches or a foot apart, are put in from the inside, set in white lead. Ash is a good wood. Such a keel, while it increases the weight by 2 to 4 pounds, strengthens the canoe greatly, and takes a large proportion of the hard knocks and scrapes that would otherwise fall upon the unprotected bottom. Give it a couple of coats of paint when finished.

Some makers furnish their canoes inside with 3 or 5 light parallel strips running the whole length of the bottom, to protect it from being scratched by sharp tools, hobnailed shoes, etc.

Furnishings

Canoe chairs, cushions, etc, are more popular when giving your "best girl" a canoe-ride than for use in the wilderness. A light wooden back-rest may be taken, but it should be solid so as to be used as a card-table in camp. One useful article which I strongly recommend is a good-sized carriage-sponge, the best kind of a bailer and cleaner.

Canoe-Carriers

Guides commonly scorn anything in the line of carriers, except in the Adirondacks, where boats are used. For amateurs a good carrier is not to be despised. The best is that used in the Adirondacks, the "neck-yoke," worked out by hand from a solid block of whitewood, fitting the shoulders and having arms the ends of which fit into grooves in the sides of the canoe. These grooves are generally made by screwing pieces of wood, specially cut, under the gunwales. The excellent fit of this yoke makes it possible to ease either

shoulders or neck by a proper adjustment of the muscles. The "neck-yoke" may be had of J. H. Rushton, Canton, N. Y.

FIG. 18.—Neck-Yoke Carrier

Many other kinds of carriers are on the market, most of them furnished with cushions that rest on the shoulders, but all that I know are inferior to the yoke.

The pneumatic canoe-carrier, fitting round the neck, has been much praised. It should have straps which are secured to the paddles (lying tied longitudinally to the thwarts) and a third strap to go over the centre thwart, to prevent slipping back.

FIG. 19.—Pneumatic Canoe-Yoke

The Micmac method of carrying a canoe may be seen in the accompanying illustrations. The paddle-blades rest on the shoulders, a sweater or something soft being placed between. The paddle-blades are under the centre thwart (when canoe is reversed) and the ends over the next thwart behind.

Upon disembarking at a camp-ground canoes should be placed on the bank upside down. Birch-barks should not be exposed to the sun, as the resin will melt, weakening the seams. They may be left in the water if they ride easily and securely without chafing or bumping,

Care of Canoes

but should be hauled out at night, or a rise in the stream or a storm may render you canoeless before morning, or at least with a badly chafed craft. Never leave a canoe in such a position that any strain on its middle is brought to bear, for example resting on the ends with no support in the middle. Never drag a canoe, even over the smooth boards of a float, but lift it clear of the ground. When badly scratched up give it a couple of coats of paint. A very good paint is the "Canoe Enamel" made by Edw. Smith & Co. for Mr. Rushton, costing $1.00 per can, enough for a coat; it comes in many tints. The "Standard Canoe Colours" (J. W. Masury & Son) are also good.

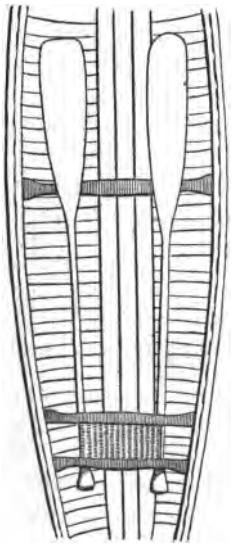

FIG. 20.—Position of Paddles for Carrying

FIG. 21.—Carrying; Micmac Style

When a birch-bark leaks (its normal condition) it is first taken out and thoroughly dried. If possible this is done in the shade, but, since repairs are generally necessary at once during a cruise, it is usually done in the sun, care being taken not to overdo the thing.

Repairs, Birch-barks

If a leak must be stopped immediately while under way, recourse must be had to torches of birch-bark, which are held close to the wound until the lips are sufficiently dry for the resin to stick. Care must of course be taken not to burn the bark. Meanwhile the resin- or pitch-kettle (which must always accompany a bark canoe) has been heating over a fire, and a small quantity of the melted stuff is poured over the cut and rubbed in with a rag on the end of a stick, after which a piece of cotton cloth, cut to the proper size and shape, is dipped in the resin, laid over the leak, and there plastered down with the swab. In case of very bad wounds it may be necessary to sew up the rent with split white-spruce roots, after which the seams are pitched and coated with cotton as before.

Canvas Canoes

When trips of any length with canvas canoes are planned it is well to take along a one-pound can of white lead, a small can of yellow shellac, and a piece of thin stuff, oiled silk for preference. If the paint gets scratched or knocked off so that the canvas shows, cover the place neatly with white lead, wait until it hardens, and then paint with the shellac. Do this whenever the canvas is exposed, as water may soak through and cause a leak, or at least increase the weight of the canoe. For a very small wound shellac alone is sufficient. When the canvas is actually perforated the place should be dried, any loose threads clipped off clean, and a small quantity of white lead rubbed into the cut so that it will spread over the cedar planking inside for a quarter of an inch all round, *i.e.* inside the canvas but outside the planking. A

piece of silk or cotton, cut to fit the hole but a little larger, is then rubbed with white lead on both sides and worked neatly into the hole with the penknife, the lips of the cut then pressed down upon the silk, a little more white lead rubbed on, and, after hardening, the wound painted with shellac. In the case of minor cuts, especially when the planking has not been injured, the above will suffice, but if the hole is a big one the lips may have to be further closed with small tacks (copper best), which are driven through the planking and there clinched. In such a case it may be necessary to cover the whole wound with an additional piece of silk, as in the case of a bark canoe. This does not improve the appearance of our craft, but we are in the forest and not figuring in a canoe parade in a suburban park. If the planking has been perforated or badly cracked a piece of hard wood may be whittled to shape and fixed over the wound on the inside of the canoe with tacks, or, better still, small screws, the ends of which, if they protrude, must be filed off. If a canoe gets badly torn up it should be repaired as well as may be on the spot, and then shipped to the maker, or to some experienced workman, for repairs, unless the owner think himself competent to undertake such a job, which is a very difficult one for an amateur to do well. A bad smash can be mended with birch-bark, quite as well as if the canoe were a bark.

A small roll of bicycle-tape will be found excellent for quick repairs.

In default of any other material spruce gum, chewed soft, will stop a hole of small size.

Before entering a canoe bring it broadside to the

landing-place, and, carefully preserving your body balance, place one foot exactly in the middle of the craft. When you perceive that all is serene place the other foot beside it and sit or kneel down quickly but steadily. If you do not paddle there will probably be some one to hold the canoe while you get in. If you have a paddle, thrust it down to the bottom on the other side of the canoe and use it to steady yourself; the paddle will prevent the canoe sidling off and causing a possible straddle on your part that might easily end in an ignominious ducking. When in a canoe learn to make all necessary movements without interfering with the balance. The slightest lurch to one side must be avoided; look backward as seldom as possible and be careful how you do it. Two men should never change places without landing. Canoes are, for their build, wonderfully steady and long-suffering, but no man can tell just when the limit of their patience will be reached. When it is, over they go in a flash. Then hang on to your paddle. If you cruise about lakes and cannot swim, it is safer to have an inflated rubber cushion, provided with a life-line, with you; it will easily hold up two men if they keep cool. The late H. P. Wells, the great angling authority and charming writer, animadverts amusingly on the feminine character of the birch-bark canoe, and his remarks may apply as well to the canvas:

Handling

With a boat, too, you can, ordinarily at least, find a dry spot on its bottom—perhaps even right it and climb in. But a birch, when it has once spilled its cargo, passes from the placid demureness of a cat into the friskiness of a kitten. Touch it, and it squirms and sidles off like a country-girl at a merry-making when some gallant tries to put his arm

across the face or breast, while the lower pulls the blade through the water. The failure to execute the piston-like thrust of the upper hand is the besetting sin of beginners.

The bow paddler's duty is simple, being merely to keep up a regular stroke and watch for hidden rocks and other obstructions, while that of the stern paddler is more difficult and complicated, for he it is who keeps the craft on a straight course or steers it in the chosen direction. When assisted by a bow paddle his task is easy, but when alone he must correct the tendency of the canoe to turn constantly in one direction by a lateral and upward push of the blade against the water, applied just the moment before it is withdrawn for the next stroke. The knack of stern-paddling, like waltzing or riding the bicycle, can be learned only by experience, but it is not difficult.

From the very first, learn to paddle as well on one side of the canoe as on the other (a rule that should be written in large capitals). It is a great rest to change sides, and many 's the time the slap on the water by one's mate, the signal for a shift-over, comes as a welcome relief to the tired muscles.

In "White Water"

It is in swift water that the work of the bow paddler becomes more important, for here he must keep his weather eye peeled and be ready to fend off at the precise moment called for, neither too soon nor too late. In running rapids most bow paddlers are inclined to do too much, and thus, instead of helping the steerer, handicap his efforts. The ideal bow paddler holds himself on the alert, ready to obey the command of the steerer,

KNEE-DEEP IN JUNE.

POLING UP THE RAPIDS

but does little until occasion demands. Then a deft but energetic movement of the paddle averts the impending danger. Running rapids is one of the most exhilarating, not to say thrilling, of pastimes, but it is dangerous to a degree and the wonder is that so few bad accidents happen. Last year, as bow paddle, I ran a nasty rapid with a first-class Indian canoeman in the stern. In the midst of it, while we were seething down the white waters at a record pace, he had the misfortune, while trying to throw the bow a little to the left, to get his paddle caught between two stones in such a manner that it was either break or let go, and, as it was his favourite paddle, he chose the latter alternative, wisely or not. Just as he sang out to me above the roar of the rapid, "Look out, I've lost my paddle!" the very same accident happened to me. My paddle was whipped out of my hand before I could make up my mind whether or not to let go, and the next moment a helpless and frail canoe with two men, provisions, and duffle went shooting down the last half of one of the most precipitate and rocky rapids in Canada. I had an indistinct consciousness of sticking out one foot over the gunwale and shooting my heel with all my might at one particularly dangerous, jagged point as we tore by, and the next moment we sat high and dry on a flat rock at the foot of the rapid. Talk of ice-yachting and motoring—they are nothing to shooting rapids without paddles! You yell with excitement and exhilaration, but your hair stands on end at the same time. Of course the incident described was very exceptional, and we had all the luck in getting off with only one bad rent in the bottom of our craft.

On long trips, when many rapids must be run, a "setting-pole" is used. This is a stout sapling about 10 feet long, into one end of which a tapering spike, made for the purpose, is driven and confined by an iron ring. This spike should not protrude too far (not over 3 inches), or it will cause the pole to get caught between rocks as our paddles did in the above story. The spike and ring are taken as part of the kit and the pole cut when needed. An iron shoe with nail-holes is quite unnecessary. A setting-pole is absolutely essential in getting up-stream when the water is heavy and swift. Beginners are recommended not to attempt its use except under the eye of an old hand. There is a knack in handling it, though at first it seems the most unwieldy implement imaginable.

Setting-pole

If caught out in a lake in a storm kneel down and be especially careful to make clean strokes; catching a crab in a canoe is apt to lead to instant disaster, particularly in a heavy sea. Be careful not to get the canoe in the trough of the waves, especially if she is at all top-heavy. If the wind is dead ahead or dead aft the danger is lessened. The stern paddler must watch the combers like a cat and be ready to turn the bow into the big ones. At such a time (and theoretically always in a canoe) one paddle or the other should be in the water constantly. The majority of u sets occur when this rule is neglected and some sudden movement of one or both men cannot be offset by the steadying paddle.

On a Rough Lake

In a gale keep as much as possible under lee of islands and points. Better still, don't start out at all in such weather.

If the trip is made through country abounding in lakes much hard paddling can be saved by rigging some kind of a sail in the bow. This may be simply a thick bush, or a tarpaulin or poncho or tent-fly rigged on a pole and paddle. A long experience in the lake district of southern Nova Scotia has taught me that the most practical sail is simply a big and strong umbrella of the kind used in escorting ladies from the carriage to the house. It fits into the rod-case and does yeoman service on the lake. I have saved scores of miles' paddling with one. An old umbrella may be taken along and abandoned when the last big lake has been crossed.

Sailing

Of course a sail is of service only when the wind is quite or nearly dead aft. Centre-boards are impracticable on the rocky lakes of the north woods.

Canoes are loaded with two objects in view, proper trim and the security of the duffle. See that no box or bundle chafes the sides, nor slides from side to side. Get the load, and particularly the heavy stuff, as low in the canoe as possible, to avoid top-heaviness. Have the receptacles containing provender and cooking utensils where they can be got at easily at lunch time. Do not pack anything that should be kept dry on the very bottom of the canoe, especially if it rains, or on a rough lake or in bad rapids. Be sure to leave room for the two paddlers' feet and legs. When loaded the canoe should float on an even keel, neither end being higher than the other. In rapid water, however, the bow should be a trifle higher than the stern when going up-stream, and the stern a trifle higher when going down-stream. Perhaps it would be more exact to say that

Loading

the heavier end should be always the down-stream end, whichever direction the canoe is going. This makes steering easier.

Whether the duffle should be firmly attached to the canoe is a question that may be answered with yes if the canoe will float when upset. If not, then it makes little difference in deep water, except that some of the duffle might float if not tied on. In swift, shallow water it is well to secure the important articles, especially the heavy ones, such as the rifle, camera, etc., as an upset might result in the loss of material absolutely essential to comfort if not life. Such experiences as that of Dillon Wallace in Labrador should be taken to heart. (*The Long Labrador Trail.*)

Tracking

On long trips a stout tracking-line, about a dozen or more feet long, should be attached to the bow. It will be found very useful in getting up and down dangerous rapids, and in anchoring for fishing purposes.

(The above chapter on canoeing has been read and very kindly approved by Mr. J. H. Rushton, who disagrees with me on one point only, the toughness of the all-wood canoe. Mr. Rushton, certainly an excellent authority, has made the "Nessmuk" and other wooden canoes for many years, and has a high opinion of their strength and general usefulness, even in swift waters, an opinion which I do not share, so far as the waters of the north woods, with which I am most familiar, are concerned.)

CHAPTER VII

PROVISIONS

ABOUT no subject connected with camping-out is there so much opportunity for honest difference of opinion as this, since the personal equation necessarily enters into it to a large degree.

Provisions may be divided into two categories: staples and legitimate luxuries. By the latter term are meant articles of food and drink which may, at one time or another, be admitted to the camping larder without laying the consumer open to the charge of being an abject slave to his belly.

It is likely that a conclave of experienced amateur woodsmen would name the following commodities among the staples:

The Staples

Flour or Bread	Salt
Corn-meal	Pepper
Baking-powder	Sugar
Pork	Milk
Bacon	Butter
Lard	Candles
Tea	Matches
Coffee	Soap

Of luxuries there is a wider choice :

The Luxuries

Rye-meal	Sausage
Oatmeal	Tobacco
Buckwheat	Liquors
Rice	Eggs
Beans	Vegetables, fresh and dried.
Split peas	Pemmican
Chocolate	Canned meats
Cocoa	Condiments
Lemons	Molasses
Ham	Syrup
Cured fish	Citric Acid
Erbswurst	Marmalade
Soup-Tablets	Preserves

Additional Luxuries

Other canned goods	Sweet oil
Other condiments	Wines
Lime drops	

The proportion of staples to luxuries must depend upon the character of the proposed expedition. If it is a hard one, where going light is the chief essential, every luxury will be severely scrutinised before admission to the pack, and even some of the staples are likely to be omitted: for instance, from the above list, either the coffee or the tea, bacon, corn-meal, and possibly milk and butter. On easier trips it is all a matter of transportation, of personal taste, and the amount of physical exertion the members of the party intend to undergo; for hard work tends to increase the amount consumed, while making the camper less fastidious; in other words, he will be more contented with plain fare. In a country where game and fish can be counted on to enrich the menu luxuries are not so much

missed; while on the other hand there are luxuries which, for many people, are almost necessities, a certain quantity of which they will prefer to take with them in place of an equal amount of some recognised staple. In my own case, for example, rice, beans, dried apples or apricots, and eating chocolate invariably form part of the provender, and rather than leave these behind I will sacrifice bacon and meal. This is entirely a personal question and should be threshed out by the members of the expedition. The best way is for each camper to purchase out of his own pocket and bring along any special luxury that is not sure of an enthusiastic reception by the others; and then discussion at the point of departure will determine whether the size of the baggage will allow of its being admitted, either wholly or in part. The task of collecting the necessary provisions is best left to one man, the most experienced camper.

Choice of Provisions

Flour should be taken in a stout bag. If you are acquainted with a really satisfactory self-raising flour, take it; otherwise baking-powder (in the original tin boxes) must be taken.

Remarks on Staples

Bread. Fresh-baked loaves are often preferred to flour, being ready to eat, and thus saving time. They are bulky and thus not adapted to hard trips. One usually takes along a few, to last for a couple of days.

Cornmeal (Indian-meal), the original American flour, is a favourite with woodsmen; in fact many prefer it to white flour in case only one is taken. It has the advantage of being more easily cooked, as Johnny-cake can be made in the frying-pan, and

cakes baked on stones. It is delicious as mush and still more so when fried cold and eaten with syrup or molasses. It is also the proper thing to roll fish in before frying, and may be mixed with the white flour for bread.

Pork of good quality can almost always be found in the country, but this is less often true of

Bacon, on which account it may be as well to purchase your supply in the city. Except on very easy trips bacon should not be taken in tins, and never in glass. Take it in the flitch.

Butter, in quantities of five to fifteen pounds, is best taken in tin pails or wooden buckets, with tight-fitting covers that will not come off when sunk in the stream, where they should be kept as much as possible in warm weather. For the woods butter should be more or less salted.

Lard is best carried in a small wooden bucket on a long trip, though if overland it may be kept in two thicknesses of strong brown paper and secluded from too much heat. Not much need be taken as it is used almost exclusively for bread-making.

Tea is the staple beverage of the wilderness, and if there is any question of taking but one, choose tea, for it is more quickly and easily made, does not deteriorate like ground coffee, and, finally, the guides, almost without exception, like it best. In most cases both tea and coffee can be carried. Keep in a separate bag.

Coffee should be ground as short a time as possible before starting out, and is kept in a separate bag or wooden pail, the bag fitting better in the basket. On long trips carry in tins.

The quality of both tea and coffee should be high,

as it takes more to make a pot in the woods than indoors. Most people prefer black tea, but tastes strangely differ. So well-known a woodsman as old Nessmuk preferred green tea and boiled it for five minutes!

Cream and *Milk*. The best substitute for these is Borden's "Peerless Evaporated Milk," an unsweetened liquid quite devoid of the disagreeable taste associated with condensed milk. It comes in $.10 cans, one of which will be sufficient for four persons for two days if used moderately. Half-sized cans can also be had, convenient for short side trips. It is used by making two small holes in the top, which can be plugged or stopped by the thickening of the liquid if the can is held for a moment or two upside down with the thumbs over the holes. "Peerless" milk will keep for any length of time and can be used very economically. There is also an "Eagle" brand of condensed milk which is sweetened, and therefore less appetising to many people. The unsweetened milk has practically all the qualities of cream. "Truecream" and "Truemilk" (Abercrombie & Fitch) come in soluble powder form, and are therefore easy to transport. One uses four tablespoonfuls to a pint of water. It is rather expensive, costing $3.00 for a five-pound can. The "St. Charles" brand of evaporated milk (unsweetened) is similiar to the "Peerless," but inferior. ($.10 per can).

All these substitutes for milk must be taken from home, as they are not to be had in frontier towns.

Malted milk makes an excellent forest drink. Borden's is the most suitable, being most soluble. If taken it is better to transfer it from the bottle to a tin box well lined with clean paper.

Sugar. This is carried in its own bag. The principal substitutes for sugar are saccharine and crystalose. Crystalose comes in one-ounce vials, the contents being claimed to equal in sweetening power a ton of sugar. On very light-going trips these drugs have their place, but their taste is disliked by many.

Salt. This should be taken from home, as that obtainable in out-of-the-way places is of poor quality and has an annoying tendency to cake in moist climates.

Pepper. This may be either white or black. Personally I use only Hungarian paprika (accent on the first syllable), which is tasty, wholesome, and promotes digestion. It must not be confounded with the hot cayenne, being very much milder.

Soap. Sapolio is the first and last choice for camp soap.

Candles. A supply of ordinary paraffine candles is usually taken to be used in rustic candlesticks (see *Rustic Utensils*). If a folding "Stonebridge" lantern is carried special pressed candles had best be brought for it (see *Lantern*).

Matches. Only the good old friction match, the lucifer or "hell-stick" of our youth, will be found on the outskirts of the wilderness, and a good supply of these should be taken along in a tin can with a tight-fitting top, if possible a screw-top. There is a very good waterproof tubular match-safe on the market in the shape of two brass telescopic cylinders which fit together and hold about 500 wooden matches. It weighs about half a pound and costs $.75. For pocket match-boxes see under *Personal Outfit.*

Most tours in the wilderness are undertaken by

means of some kind of land or water conveyance, and therefore the above strictly light-going list may be amplified by the addition of many commodities which may to all intents and purposes be considered as staples. **Remarks on Luxuries**

Rye-meal may be taken as a variety. The same may be said of oatmeal, or crushed oats, though it is now conceded that cereals are by no means so nutritive as once believed.

Buckwheat-flour, only of the self-raising variety, makes the best of flapjacks, and, eaten with syrup or molasses, satisfies the marked craving for sweets which nearly all campers have.

Rice is now recognised as an extremely nutritive food, and may be used in the woods either as a vegetable or (when left over cold) mixed with flapjack batter.

Beans are another luxury that may almost be called a staple, while in a permanent camp they are a prime necessity. A good quality of the white bean apotheosised in Massachusetts should be chosen. Army men and lumbermen fully appreciate the value of the bean; in fact the classic dish, pork and beans, may be considered the most popular of the regular woods bill of fare, the beans forming, of course, the more important part of the dish. For "staying by" a man pork and beans have few equals and perhaps no superiors. In permanent camps beans are always cooked on the spot, but when transportation is fairly easy and time must be saved canned baked beans are very convenient. I have found a Canadian brand, without ketchup, the most toothsome. A supply of

Split Peas, to thicken soups and to be used as

a vegetable, is recommended, for they are very nutritious.

Erbswurst (peameal-sausage), a concentrated peameal with bacon, used for making soup, is much in vogue just now in this country. Although good and nutritious it is very expensive, taking its bulk into consideration, and, except its convenient form, has few advantages over split peas. (Price $.17 the half-pound roll.)

Chocolate is now regarded as a very high-class food on account of its nutritive qualities. It is expensive and should not be a part of the daily ration, but kept for emergency uses. A half cake will keep a man's strength up for a day without any other food. I never strike off from camp by myself without a piece of chocolate in my pocket. Do not, however, have anything to do with the mawkishly sweet chocolates of the candy-shops or the imported milk chocolates, which are not suited for the purpose. We have something far better here in America in Walter Baker & Co.'s "Dot" brand, which is slightly sweetened. It comes in half-pound cakes. It is not so popular commercially as the sweeter kinds and cannot therefore always be found at your grocer's, but can be obtained from the firm.

Cocoa is an out-and-out luxury, but may be included on a canoe trip to vary the bill of fare, or in case some member of the party drinks no stimulants at night. I like Baker's better than any foreign brand, and am assured by scientific friends that it is pure.

Lemons come very near to being a staple, especially in summer, when they are delicious and wholesome. On a long, hard tramp, when thirst tortures, a suck at a lemon kept in the pocket will help more than a

pint of water, which would fill up the stomach and badly handicap the tramper.

Limes are as good as lemons or better, since, bulk for bulk, they go farther.

Cheese varies the menu and makes fine sandwiches, but is not an important item.

Ham is excellent in a permanent camp or on a very easy trip.

Smoked and *Salted Fish* includes herring, smoked and canned salmon, sprats and sardines, and shredded codfish. All are good, though the canned stuff is admissible only to easy trips. The smoked sprats are particularly good. Shredded codfish is light and makes excellent fishballs.

Soup Tablets, Capsules, etc., would be included in the staples by many on account of their convenient form. There are many varieties, among them Armour's, Knorr's, Anker's, Maggi's, and Raffauf's, some being for soups and some for bouillon. Dried Julienne, for soups, stews, etc., is toothsome, though really an unnecessary luxury. All these things should be kept in tin boxes.

Sausage. Large sausages of the Bologna pattern are excellent, but get the imported German *Cervelat-wurst* if you can, as it is better and more nutritive though costlier. *Leberwurst* is too soft.

Pemmican, a chief staple of Arctic travellers, will not be needed unless a tour into very distant and inhospitable regions is projected. It used to be compounded of powdered buffalo meat, fat, and marrow, but is now made of dried and powdered beef mixed with suet, with a little sugar and a few raisins for flavour. It may be had of dealers at $2.00 the two-pound can. I can live without it beautifully!

Jerked Meat, especially that of moose or deer, is far better. It can hardly ever be bought in cities. (See *Cookery*.)

Canned Meats are quite permissible on fairly easy trips. Corned beef, tongue, and dried beef are the favourites. They are all heavy, of course, and as little as possible should be taken, though in summer, when no fresh meat is obtainable for the squeamish in camp, canned meat offers a pleasing variety. The old woodsman varies his fare with frogs, porcupines, coons, young crows and owls, and other woodland delicacies. (See *Cookery*.)

Eggs are delicious in camp, and on easy trips a box or basket filled with fresh ones packed in meal may be taken. Several varieties of dried eggs are on the market, which are said to be fit for cooking.

Vegetables. Fresh vegetables, especially potatoes and onions, are generally taken. I leave the potatoes behind whenever I can persuade my companions to join me in renunciation, for they are sickeningly heavy and therefore unsuited to long, hard trips, while on short ones they are not worth transporting. In permanent camps they are welcome and in place. Evaporated potatoes can now be had that taste very good. They come sliced at $.25 the package. They do very well for the woods, especially in stews. Knorr's dried onions are also excellent; they cost $.20 the package. The same firm sells a variety of other dried vegetables.

Molasses is heavy, but oh, so good in the woods! A stone jug is the proper receptacle. On hard overland trips the retired whiskey-bottle is generally used, but must be carefully wrapped up to avoid breaking. Better is a tin can with screw-top.

Syrup is an effete luxury compared with molasses, and is scorned except on the easiest of trips, when both may be taken.

Preserves of all kinds never taste so good as in the woods, and, though pure luxuries, are most wholesome. In a permanent camp the more the merrier, while a few cans of marmalade or a small supply of jams or preserves may be taken on easy trips, always in tins if possible.

Dried (evaporated) *Fruits* are much more important than preserves, on account of their convenient form and wholesome nature. I regard them as a staple and never go into the woods, even on an overland tramp of more than a few days' duration, without a supply of either dried apples, peaches, or apricots, preferably the first. In country districts they are not always to be had, and can be got in a better quality of some good grocer. Prunes are good to have also in some quantity, as well as a few seeded raisins for puddings, buns, etc.

Citric Acid. A small quantity of this should be taken for lemonade in case no lemons or limes are in the larder.

Tobacco is to many people both a staple and a luxury, and the great majority of woodsmen have the profoundest pity for the non-smoker. What? No pipe when sitting round the camp-fire as the forest shades deepen into blackness? No, no, the thought is really too harrowing. The best way to take tobacco is in the plug or the larger "hand," though on easy trips it may be carried, sliced, in tins. A rubber pocket pouch contains the daily supply. Cigars are an effete luxury. If they are taken they should be carried in a strong but light box, which, as it is

depleted, is kept full by adding moss. The cigars should be rolled firmly together in foil to prevent chafing and breaking. Cigarette fiends should reform in the woods; it is the opportunity of their lives. Of wind-matches or fuzees I have spoken before. Without them it is a heart-breaking and sometimes impossible task to light a pipe in a fresh breeze or a rainstorm, just when you are apt to want it most. They are also most convenient for lighting fires on wet days.

Liquors. The question of liquor is a delicate one and essentially personal. There are many things to be said against it, chief among which is the fact that it is heavy and awkward to carry. The sportsman, especially if he is a business man escaped from his office, ought to allow nature a fair chance to brace him up for the coming months of toil and artificial city life. Unquestionably it is best for such a man, and probably for all others, to leave rum and whiskey at home. If you are not an habitual drinker you certainly do not want it, while, if you are, a period of abstinence is the very best thing for you. Trust outdoor life to supply all the tonic you need. Nevertheless, though the above is a good rule for everyday life in the woods, it is not wise to tarry there totally without liquor. A small quantity of really good whiskey or brandy may prove a godsend in case of accident, illness, or severe chill. Liquor is like dynamite: properly handled it is a boon; abused a terrible curse. Upon one thing you may depend: as an aid to endurance it is a complete failure, as its effect is always of short duration, and is followed by a reaction that adds twenty pounds to a man's pack. For warming-up purposes Jamaica Ginger

is quite as good. In favour of liquor are two arguments. Firstly nearly all guides like a wee nippy on occasion, and, secondly, there are times when the sportsmen like it just as well, and it certainly does add wonderfully to the festivity of certain occasions, like the fall of the big moose or the gaffing of the twenty-five-pounder.

Liquor should never be carried in aluminum vessels, as alcohol attacks this metal.

Condiments of various kinds may be taken along, as they are light and only small quantities are necessary. The heavy ones are tomato-catsup, the backwoods favourite, which must be carried in bottles, and pickles of all kinds, which are good for permanent camps or the easiest journeys only, and the like may be said of liquid sauces. The best condiments for camping are in powder form, as mustard, paprika, curry, cayenne, ginger, etc. Of these paprika and mustard are the most wholesome. Among condiments I reckon garlic, without a pod of which I seldom go camping. Discretely used it is a wonderful aid to the cook. A few common country pickles may be taken if nothing else that is sour is in the larder. On easy trips a can of vinegar is almost necessary. A tiny quantity of allspice may be taken for the swell cook when he wants to spread himself on some festive occasion.

The permanent camp is the proper place for such things as wines, sweet oil, confectionery, canned vegetables, etc. The best kinds of confectionery for the camp are candied ginger and lime-drops, though here tastes differ.

Books on camping usually contain check-lists of rations and stores for parties of different sizes. My

belief, founded on experience, is that nobody ever consults them, persons and conditions varying too greatly. Nevertheless, as a general guide, I add here the minimum quantity of the staples for a party of four on a two weeks' trip in canoes.

Flour (including ryemeal, buckwheat, cornmeal, etc., no bread being taken)	30 lbs.
Rice	10 lbs.
Pork, bacon, ham	20 lbs.
Lard	5 lbs.
Sugar	10 lbs.
Tea	2 lbs.
Coffee	3 lbs.
Beans	8 lbs.
Evaporated milk	10 cans.
Butter	10 lbs.
Dried fruit	5 lbs.
Potatoes, fresh	½ bu.

This is for an easy trip, some fish or game being secured in the woods. Luxuries may be added.

CHAPTER VIII

COOKERY

COOKING-KITS

On trips of only two or three days' duration, or when everything must be carried overland on the campers' backs, the kit must be a very simple one, consisting of (for a party of two or three) a frying-pan, two retinned or aluminum pails that nest together, small salt and pepper shakers, and for each person a tin cup, knife, fork, and spoon, with perhaps a large spoon for cooking. This last article may be replaced by a wooden stirrer or ladle cut in the woods, while the hunting-knife may do for all purposes, this saving the case-knives. Those who are capable of making hard overland trips without conveyances may be expected to go very light indeed, and still more may this be taken for granted in the case of a single camper, who should get along with a small-sized frying-pan, one pail, salt-shaker, tin cup and fork, all of which may be slung on his pack, which consists of his blanket or sleeping-bag and contents with a tent-fly or large poncho. All extra clothing and provisions except pork are in the pack. The hatchet and cup are slung on the belt, the pork is in the pail, and rifle and fish-rod are carried in the hand. I do not much like the so-called one-man

kits, of which the best is perhaps the U. S. Army mess-kit. The Preston kit is more elaborate and much more costly ($6.00). It is of aluminum except for a quite unnecessary canteen. This may be left at home, the space being filled with food. The spoon is aluminum and therefore to be condemned. It is however a strong, light, and compact kit. Canteens are not needed in the north woods, where water is to be found everywhere.

For ordinary trips excellent nesting kits of aluminum (really an aluminum alloy) can be had of the dealers. The "A. and F." is made for 2, 3, 4, 6, and 8 persons. That for four costs $16.60, including canvas carrying-bag, and weighs 8¼ pounds. It consists of three pails (in woods parlance kettles), two frying-pans, coffee-pot, cups, soup-bowls, knives, forks, tea-spoons, and dessert-spoons. The larger kits contain another pail and more smaller articles. I have given this kit some long and hard trials and found it pretty near perfection. My chief fear was that it would prove tender, but it is actually tougher than tin or iron, very much lighter, and far easier to clean. I would not now have any other, in spite of its cost. I have a few minor personal objections to it, one being the soup-bowls, the use of which I cannot see and therefore leave them at home. The other objection is the use of aluminum for spoons and cups, for they are simply infernal when food and drink are hot, and I have burnt my mouth with them far too often. But there is a way out of the difficulty. There is also a kit similar in character to the aluminum, but of retinned steel, so that when ordering the aluminum kit you may stipulate for the including of tin cups and spoons. The retinned set, which I have also used

in times past, is a good one and costs for four persons $5.75. If you can afford the initial outlay the aluminum kit will prove economical in the long run. The "Moosehead" aluminum kit is somewhat similar to the "A. & F.," but rather heavier and somewhat more expensive. Neither kit contains the following articles necessary for long trips: salt and pepper shakers, sugar-box, broiler, cooking-spoon.

An excellent feature of these kits is the patent hollow handle of the frying-pans, into which a three- or four-foot stick is thrust, enabling the cook to fry without scorching himself. Whoever has broiled himself along with the fish or pork over a hot coal

Fig. 23.—Frying-pan and Detachable Handle

fire will appreciate this immunity. It is all very well to say that a short handle is quite as good providing a proper cooking fire is made; but such a fire cannot always be provided and even then it is often too hot for comfort. Besides the tubular handles may be used as short as desired, and they have the great advantage of being detachable, so that there is no long iron handle sticking out when you want to pack the pan.

Another good cooking-kit that I have used with satisfaction is the Wilson "Kamp Kook's Kit," which is very elaborate so far as the number of pieces goes and very strong, though heavy, weighing twenty pounds. It costs, with twenty-one cooking pieces and fifty-four pieces of tableware (for six persons),

$16. The coffee-pot, having a solid-lip spout and holding three quarts, is a particularly fine article.

Of course a good camp-kit may be got together without recourse to the dealers, though in the end it is apt to weigh more and be less compact than those just mentioned. The first step towards the collection of a kit is a visit to the aluminum counter of a department store, where good plates, forks, pans, broiler, and coffee-pot may be found. The frying-pan will not have the patent handle, but a stick may be wired on in the woods, or the whole patent pan may be bought. A supply of strong wire should always be taken into the woods on long trips for such emergencies as these. The sides of a good frying-pan should be nearly perpendicular (not flaring), so that the bottom shall be as large as possible. The pails should be of different sizes so that they will nest together. Always get the best of block-tin. The salt and pepper shakers should be of aluminum or the best tin, as anything else will rust, and the holes should be extra large, as even the best salt tends to cake in the woods. The broiler should be a stout one with flanges on the sides to prevent the food slipping into the fire. Most broilers do not have this excellent feature. The broiler may be carried in the case with the folding baker (see below). A chain pot-cleaner is a comfort in a permanent camp. Good, generous-sized tin cups should be bought. I like mine with broad flat bottoms and handles not cut through at the bottom, so that they may be slung on the belt if desired. The handles should be rivetted on. For nesting, however, they should slope gently to the bottom and have cut-through handles.

The folding baker is carried flat in a canvas case

together with its pan and kneading-board, and, if made of aluminum, weighs only 4½ pounds in the largest size ($4.50 with case) and 2½ pounds in the smaller ($4.00). The latter bakes a dozen biscuits at a time, so that two batches are sufficient for four persons. The baker is really a heat-reflector, being open to the coals on one side, the heat having access above and below the pan. No better apparatus for baking biscuits exists, and game or anything else can be done in it excellently. Its light weight and flat form make it easy to pack.

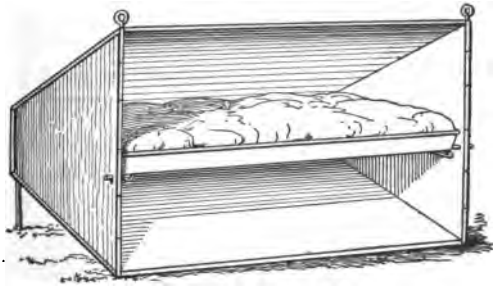

FIG. 24.—Folding Baker

On fishing trips a Marble fish-cleaning knife is worth taking. A rotary can-opener, which is inserted in the middle of the can's top and cuts round the edge, is a necessity if canned goods are taken at all.

The catalogues of the sporting goods dealers are full of all manner of conveniences for camping, such as meat-safes, grates, hot-water dishes, wall-pockets, but I should not wish to go on record as recommending them as necessities, though no doubt they would all come in handy in a permanent camp. There is no harm in trying them; it 's part of the fun.

There should be no soldering about any utensil

likely to come in contact with a camp-fire, or the soldered parts will melt off "as sure as shootin'." Rivets are the solution.

GETTING MEALS

While the fire is being started and the utensils unpacked the cook will be deciding the great question of the bill of fare. He fills at least two kettles with the purest water to be had (a spring is likely to be near), and then cuts two stout poles from four to six feet long and sharpens the stouter ends. One of these is driven obliquely into the ground, the bail of a kettle is hung across a nick in the upper end, which is then pressed down so that the kettle will be poised over the right part of the fire. If the soil is too loose to hold the pole, rocks may be used to hold down the big end or prop up the other to the required angle. The tea- or coffee-pot and frying-pan are placed near the fire to warm up, whatever is to be boiled is put into the pot as soon as the water is at the proper temperature, and the food to be fried or broiled is then prepared for cooking. A fire-hook or hanger, to handle hot kettles, is also cut. Every lumber camp has a cookee, or cook's assistant, and the office (which may be held by the members of the party in rotation) is not a bad one in a sporting camp. The cookee makes the fire, cuts the pole-cranes, draws the water, and "lays the table," *i.e.*, unpacks the kit; and makes himself generally useful, while the

FIG. 25.—Fire-hook

cook confines his attention to purely culinary operations. If potatoes are to be sliced or fish dressed the cookee helps. The result of this arrangement is quickly and easily served meals.

Cooking Fires

By the time the hardwood fire has burned itself down to smokeless, glowing coals frying and broiling may begin. Most writers tell us that it is bad woods-form to cook over the camp fire, and that a small extra fire should be made at one side for this purpose. Nessmuk may serve as the spokesman of these gentlemen, with whom I am not wholly in agreement. His directions for making a forest range are as follows:

> Two logs, six feet long and eight inches wide, are laid parallel but seven inches apart at one end and only four at the other. They are bedded firmly and flattened a little on the inside. On the upper side the logs are carefully hewed and levelled until pots, pans, and kettles will sit firmly and evenly on them. A strong forked stake is driven at each end of the space, and a cross-pole, two or three inches thick, laid on, for hanging kettles. (*Woodcraft*).

Now if you have plenty of time, say in a permanent camp, there is no objection to building such a range, but I respectfully submit that it is quite out of place otherwise and is totally unnecessary, for the ordinary fire, if built right and with the proper woods, is just as good and better for boiling and broiling, especially if you have the correct implements, as described above, and very much better for baking (see *Making Camp*). The cook does not allow the pan to rest on the fire, for frying is an operation that needs one's whole attention. The logs would keep the coals from the baker, which must be placed before

an open fire. Broiling is done best by propping up the broiler before the coals by means of short forked sticks.

A very good cooking-range is made of two short logs of the Nessmuk kind, but diverging so that their ends are about six inches apart on one side and two feet on the other. At the wider opening large stones

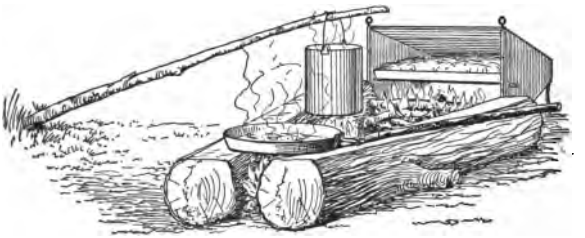

FIG. 26.—Modified Nessmuk Range

are placed next the log ends, two or three on each side, graded in size towards the front. Across these poles of hardwood are laid. On this side of the fireplace the baker is set, while the frying and broiling may be done between the logs, in the Nessmuk fashion. (See sketch on this page.)

Choice of Dishes

In the choice of fare the cook is governed by the extent of his larder and the time at his command. If the famished cry of "Hurry up there cook! I 'm as hungry as a bear!" arises, summary measures are in order and the meal must be plain; but if the cook and cookee have an hour or more at their disposal, they can afford to allow their fancy a little play. In fifteen minutes a smart cook should be able to set before his companions if not more than four in number, tea or coffee and flapjacks, to

which may be added anything cold that the larder may boast. Broiled or fried fish will take five or six minutes longer, potatoes still more time, and so on up to what may be called in the woods elaborate dishes, like stews and roasts.

Scrupulous cleanliness should be the cook's motto. He may not be able to attain to the very highest standard in this respect, but he can do his best. He should begin operations by washing his hands(which may be done as ostentatiously as possible; it inspires his companions with confidence!). Jesting aside, it is well to keep the traditional peck of dirt down to that one peck, and even the most hardened woodsman likes his food cooked and served as decently as possible. Much depends upon the state of the dishes, and there is no excuse for these to be otherwise than perfectly clean (see below, *Dish-washing*).

Cleanliness

Much of the drudgery in camp is avoided or minimised by dividing and systematising the duties. Have the cook and cookee for the day known beforehand. Another of the party may be assigned to some other special duty, such as supplying wood. One gets the habit of such an arrangement quickly, and the necessary camp duties then cease to be the irksome tasks of volunteers who regard themselves more or less in the light of martyrs. Even when all such work is done by the guides the employers should help where they can. It is different in the old world, where people are frightfully apprehensive of losing caste by hobnobbing with their servants and huntsmen.

Division of Labour

Helpfulness

The guides of the north woods are in almost all cases as much companions as servants. They know their places and are respectful, but they are with few exceptions men of a certain independence of character and know their own worth; they value their self-respect to the point of sensitiveness. The man who is afraid of losing dignity by helping his guide in the duties of camp life would be a ridiculous, not to say contemptible figure on this side of the Atlantic.

Most campers who employ guides allow them to do all the cooking and thereby miss a lot of fun. The most enjoyable trips I ever took were those upon which everybody took a hand as cook, excepting such as proved that their total lack of culinary ability was a devastating fact. Just as nearly every clubman is known for the preparation of some little chafing-dish dainty, so many campers boast of some mysterious but delicious dish known only to themselves, and the concoction of these messes before a scoffing camp, which nevertheless generally remains to lick the platter clean, is always amusing and often most satisfactory. The failures contribute hugely to the "gaiety of nations."

One last hint to the cook: If he is wise in his generation he will not risk having things thrown at him by posing the old, old question, "Well, boys, what' ll we have to-day?" but will decide beforehand upon one or more dishes to propose, thus placing the onus of choice upon his victims.

Cook-books

Nearly all camp cookery books presuppose the possession of materials which the majority of campers never carry with them, notably fresh eggs and milk. The following recipes are

guiltless of either, dried eggs being recommended when in camp, though not necessary, and evaporated milk taking the place of fresh.

Wood fires are very hot and it is better not to trust too implicitly to their tender mercies, but to watch pan, baker, and kettle closely, especially the last, as water has a way of boiling out before one is aware of it, and the result is disaster.

General Warning

During the meal a large kettle of water is being heated for the dish-washing, for the secret of this art is *plenty* of *boiling* water. If you have no large dish you must dip your implements in, piece by piece. Otherwise put the things, knives and forks first, into the biggest pail or dish, pour water over them, and let them stand a minute or two. Then temper the water to bearable heat and have one man scrub the pieces with the dish-rag, while a second wipes. Sapolio will help mightily. Pans may have to be scraped with the "chain-rag," after the most of the grease has been removed with a knife. Frying-pans should, before cleaning, be partly filled with water which is brought to a boil. If you are travelling very light a round piece of sod just fitting the pan will be found an excellent cleaner. Wash both dish-rag and wiper after each meal. The former should be well boiled every once in a while. Keep the camp clean, throwing refuse either into a big hole, to be covered up after each meal, or depositing it some ways from the camp, to avoid attracting flies.

Dish-Washing

RECIPES

Beverages

Tea. Into a dry, heated pot throw a heaping teaspoonful for each person plus two "for the pot," or, if more than four persons, three extra. Over this pour boiling water, two cups for each person, and allow to draw for at least ten minutes next the fire before drinking. Never boil tea, Nessmuk to the contrary notwithstanding.

Coffee. In a dry, heated pot place two heaping dessertspoonfuls of ground coffee for each person, and over this pour a pint of boiling water per person. Set next the fire for about ten minutes. If the water is absolutely seething, as it should be, it is better not to boil the coffee, as its flavour and aroma are thereby impaired. If eggs are plenty in camp one may be mixed with the ground coffee, shell and all, before the water is added, in order to settle the brew. This may also be done by pouring in a little cold water after brewing. There is no objection to letting the coffee boil up for a second after putting it in the pot, but not longer. Nevertheless, the fact must be placed on record that the great majority of people do boil their coffee—at the expense of the aroma.

Cocoa. Follow directions on the can.

Grain Foods

Biscuits. (For 4 persons). Mix into a quart of flour 2 teaspoonfuls of baking-powder, 1 teaspoonful of salt, and a piece of lard (or cold pork fat) size of an egg. Add 1 tablespoonful of Borden's evaporated milk (or 2 of milk-powder), and cold water enough to make a dough that can be rolled

out, with a bottle or pin, on the bread board (of the folding-baker), one half inch thick. Cut into biscuit form with the top of the baking-powder can or a knife, and place in rows in the greased bread-pan of the baker, which is then placed before a hot fire. Keep your eye on the batch or it will burn. Turn the pan at the proper time. A sliver of wood thrust into the biscuit will prove whether they are done or not. If baked too slowly the bread will be hard and tough; if too quickly it will be raw inside. *Experientia docet.*

If there is no pan the mixing may be done right in the flour-bag itself, though it takes a little practice to do well. Do not knead bread much, or it will be tough.

Bread is made like biscuit, but is put into the pan without cutting.

Rye- and *Oatmeal-Bread* are made by substituting one or the other for a greater or smaller part of the white flour. In rye-bread the ryemeal may predominate; in oatmeal-bread the proportion may be about half and half.

Those whose ambitions rise to the making of "real home" bread that must rise over night had better take some lessons from mother before leaving home, as the science cannot be learned from books. Nor does the average wilderness camper have either the time or the proper pan for yeast-raised bread.

Johnny-cake (corn-bread). (4 persons.) Mix dry cornmeal and flour in the proportion of 3 to 2 (or half and half if preferred) with 2 teaspoonfuls of baking-powder, 1 of salt, 1 of sugar, and a piece of lard (or pork fat) size of egg. Add tablespoonful of Borden's cream (or 2 of milk-powder) and make

into thick batter, which is put into greased bread-pan, and baked before the fire in baker. If dried egg is taken mix in 2 tablespoonfuls when dry.

Corn Pone (hoe-cake). This is Johnny-cake baked in the frying-pan, which is propped up before the coals. It may also be baked on a flat stone. To make *Ashcake* lay the mixed dough on a flat stone near the fire long enough for the surface to harden slightly, then cover it completely with hot ashes and leave it fifteen or twenty minutes. Brush off the ashes and eat soon.

Cereals, such as oatmeal, cream of wheat, etc., bear directions for cooking on the outside of the packages.

Hasty Pudding (cornmeal mush). (For 4 persons.) Add a scant teaspoonful of salt to a quart of boiling water and stir in gradually and thoroughly in order to avoid lumps,a heaping cup of cornmeal. Boil until soft and smooth (at least 20 minutes), stirring occasionally to prevent burning and adding a little hot water when necessary. Practice will teach one the proper consistency. If too watery it will not slice well when cold, to make

Fried Mush, one of the delicacies of the woods. Slice the cold hasty pudding and fry brown in pork fat. Serve with molasses, syrup, or butter. Cold oatmeal may be cooked in like manner.

Boiled Rice. Wash cup of rice and put in 2 quarts of boiling water with large spoonful salt. Boil till done, stirring frequently.

Buckwheat Cakes are the best variety of flapjack. They are the easiest and quickest dish to prepare in the woods, for the self-raising buckwheat flour is merely mixed with the proper amount of cold water and large spoonfuls of it ladled into the very hot

frying-pan greased with pork fat or butter. A hot fire makes crisp cakes, as likewise does a spoonful of molasses added to the batter. The best way to make cakes is to fill the pan with the batter and make one large cake at a time. When the under side appears to be done more fat is put into the pan on each side and the solemn ceremony of *flopping* the cake takes place, by which the cake is tossed into the air and caught elegantly and precisely, raw side down, in the pan as it falls. Duffers are recommended to learn this elegant art at once, as only in this manner can a large cake, usually called the "cookee's flapjack," be turned cleanly and with style. Don't mind a failure or two, for nothing contributes more surely to the gaiety of nations and of camps than to behold the writhing disk shot confidently skyward, only to fall ignominiously among the blue flames of the camp-fire and the remarks tinged with the same hue of the unfortunate "flopper." After every batch grease the pan again. Serve with molasses, syrup, or sugar and butter.

Flapjacks (griddle cakes). (For 4.) Mix dry as for biscuits (see above) (with the addition of two dessertspoonfuls of dried egg if you have it), add the cream and water sufficient to make a thin, easily running batter. Fry and serve like buckwheat cakes. The addition to flapjack or buckwheat batter of a cup of well boiled *rice* makes the cakes delicate and tender.

Vegetables

All packages of evaporated and other dried vegetables bear directions for cooking on the labels. In regard to green vegetables it is almost wasted space

to give directions, as the seasoning, time of cooking, etc., are matters of experience easily learned. A few common recipes are nevertheless added.

Potatoes (too heavy except for easy trips). Choose those with small eyes.

Boiled: leave jackets on, wash, cut out bad parts, cut up if too large. Put into salted boiling water and cook until a sliver will go in easily. Strain and stand by fire.

Mashed: This is a great bother, but sometimes worth the trouble, as mashed potatoes are not injured by cold, they keep forever and are very light. They are therefore a good emergency food. Boil until quite done; then drain, peel, season with salt, pepper, and butter, add a little milk, and mash with a bottle or other implement.

Baked: (one of the most difficult feats is to roast potatoes well in the ashes without burning them): Put them in the coals but with enough ashes over them to prevent burning. Haul them out when you think they must be done, and return if necessary. The potatoes may also be wrapped individually in large leaves (or moist paper) and placed among the coals. I have had best success with this latter method.

Fried Boiled: Slice cold potatoes and fry in a very hot pan with a lot of pork fat or bacon. Cubes of pork improve them. Be careful about seasoning if pork is used. Woodsmen add sliced onions.

Fried Raw: Slice raw potatoes very thin and fry in boiling fat a few at a time. Take out with a fork, straining off grease.

Stewed: Cut up cold boiled potatoes into cubes half inch long and stew them in water mixed with cream and butter. Season to taste.

Beans. The large ones, Limas and others, are best for boiling; the smaller sizes for baking.

Boiled: Let a pound of pork boil for half an hour in just enough water to cover it. Parboil extra a pint of beans; drain water from pork and place beans round it; add two quarts of water, and boil steadily about 2 hours. Nessmuk recommended adding a few potatoes, peeled, a half-hour or so before the beans are done.

Baked: Boil beans and pork until the former begin to crack. Then drain, place pork in middle of a large kettle with beans round it; invert another kettle or other cover over this, place well down in glowing fire, and heap coals over all. Examine from time to time and add water if necessary. When the beans are thoroughly browned on top they are done. Lumbermen place their big iron or earthenware bean-pots in a deep "bean-hole" covered with coals, and no other baked beans can rival those of the lumber-camps.

Onions. Dip in water before peeling and the eyes will not be affected. Boil in salted water twenty-five minutes to thirty-five, or until done.

Fried: Slice and fry in fat. Fried onions are generally made in connection with potatoes or pork. An *Onion Fry*, beloved of guides, is a fry up of cold potatoes and onions, about half and half.

Mushrooms. If you are lucky enough to find them in the woods and are sure they are not toadstools, stew them in evaporated milk and water until soft, and season with salt, paprika, and butter. They may also be cooked in meat and other stews or used to flavour soups.

Cranberries. When found wild these are generally

very bitter, so that, after sorting and washing, they must be stewed in water with the addition of ½ cup of sugar to each cup of cranberries.

Dried Fruit. (apples, apricots, prunes, etc) should be covered with water, and allowed to cook slowly until soft. Renew water as it boils away. Add sugar to taste while cooking. *Dried Potatoes*, which are light and really not bad, must be boiled before frying.

Meats

Pork. The opening of our great West by the explorer, trapper, and lumberman is under serious obligations to salt pork, as it ever has been, and still is, the great food staple of the woodsman. If it is very salt parboil or at least soak it well. This is only necessary when pork is to be fried as a separate dish. Pork is mostly used as an ingredient in other dishes.

Fried Pork: Slice and fry slowly in the pan. Rather overdo it at first if you are not experienced and the next time you will know just when it is cooked right.

Pork fat should be, whenever possible, poured off and preserved for cooking purposes.

Bacon: Cut off the rind, slice, and fry slowly, taking care that the fat does not become ignited by the fire.

Like pork, bacon is used mostly in other dishes.

Canned Beef, Tongue, etc. need no especial comment.

Venison (including moose, elk, and caribou meat). Always tough until killed a week; better every day after that. If tough pound it well.

Roast: Any part of the meat may be used but the best cuts for roasting come from the saddle and

the shoulder. Trim by cutting off superfluous bone and fat. There are three ways of roasting: (1) in the baker (the most convenient); (2) on a spit over the fire; and (3) in the "Dutch" oven.

(1) *In the Baker:* Lay and pin (with slivers) slices of pork or bacon over the meat and sprinkle with a little flour, and with salt. Place in the pan of the baker and cover the bottom with water. Set before the coals and baste occasionally with the gravy. When done on one side turn the pan. Some insert thin slices of bacon into cuts in the meat (larding) before roasting.

(2) *Over the Fire:* Prepare as before and skewer well. Thrust a spit, perhaps a hardwood stick, through the middle and rest its ends upon forked stakes on each side of the fire, which should be a glowing bed of coals. Time, 2 to 3 hours. Turn as needed. The spit should be long enough to allow the meat to be suspended over any part of the fire. The objection to this method is that, without special precautions, the outside flesh becomes hard. Buttered paper fastened on will partly prevent this.

(3) *In a Dutch Oven:* (a large iron pot with a lid, popular in the West): Season and place in half inch of water in the pot and cover. From time to time baste with the gravy by means of a rag fastened to a stick.

Gravy may be made in the bake-pan; a little finely cut liver makes it rich.

Steak: It is pretty well admitted that, with the exception of the preparation of certain special dishes, rural cooks are far behind their urban rivals in knowledge and skill, but particularly in the former. The principal reason for this state of affairs is that

in the country, and especially among woodsmen, tradition is so hidebound that anything new stands a poor show even of a trial; and added to this is the well-known loyalty of all mankind to the dishes of childhood. One of the principal household gods of country districts, and one that demands as many victims as Moloch, is the frying-pan, which I consider the greatest enemy of the woodsman. The country standpoint in regard to it is exemplified by the regularly accepted name of a piece of moosemeat. "I killed a moose yesterday and I 'll send you up a fry." Not a roast or a broil but a *fry*. I have never been in the woods with a native who did n't prefer his moose meat fried, and the same applies to any other food that can be got into the pan. The result is that many a magnificent specimen of manhood suffers from chronic indigestion that would kill him outright if he lived any other life than that of the woods. There can, of course, be only one opinion regarding the comparative excellence of fried and broiled steak, the latter being in every way superior, both for palate and health. Broiling keeps the juices and brings out the flavour.

Broiling: Cut from 1 to 1¼ inches thick, season with salt (and if desired pepper), place in the broiler, and cook over or before glowing coals, the hotter the better. Turn frequently until done, then place on hot plate with a little butter.

Frying: If you must fry steak, then have the grease in the pan piping hot, so that an incrustation will form, preventing the meat from absorbing the grease. As this rule is generally neglected by woodland cooks, their steaks are soggy with fat. After the meat is seared pour off as much of the fat as is

not absolutely needed, and turn the steak frequently to prevent burning. If fried underdone with great care a steak cooked in this manner is often not bad.

Roasting on Sticks is a favourite way to cook meat. A piece of seasoned meat is fixed to a forked wooden toaster, and either held or stood before the coals until done. This is a kind of broiling particularly adapted to small quantities.

Liver. Always delicious. Remove gall-bladder, (if present), parboil, and fry with bacon, or roast before the fire with strips of bacon.

Moose-muffle. The Indians usually boil it; an onion gives it flavour. It is reckoned a great delicacy. *Merci!*

Hares (wrongly called rabbits) are very good eating in cold weather, despite the rural prejudice against them. They should not be eaten for several days after killing. Though they may be cooked without parboiling if kept sufficiently long, they are better, if eaten within three or four days of being killed, for being parboiled. Do this in a kettle, seasoning with salt, pepper, and an onion. Fifteen minutes' good boiling is enough. After parboiling proceed as follows:

To Roast: Cut off legs at body, which is then divided in three pieces. Put in bake-pan with a little water and slices of pork or bacon. Baste occasionally.

To Broil: Salt and toast before fire in broiler, or upon a stout forked stick.

To Fry: Sprinkle with flour and fry in lard, or pork.

To Stew: After parboiling leave the meat in the kettle and add a tablespoonful of rice, a couple of onions cut up, a potato or so, or, in fact, anything

that will enrich the stew. Season to taste (paprika or curry are excellent for those who like these condiments). As the water evaporates add enough to keep the meat covered. When the meat parts readily from the bones the stew is done.

Porcupines (especially young ones) offer an acceptable variety to the menu, and are generally excellent eating, though there are exceptions on account of season or feed. As there are no quills on the belly and the skin is quite loose, a porcupine is easily dressed. It should be hung up for several days before cooking unless in very hot weather. It may be either roasted or made into a stew, in the manner of hares, but must be parboiled at least a half-hour to be tender. One part of the porcupine is, however, always a delicacy—the *liver*, which is easily removed by making a cut just under the neck into which the hand is thrust, and the liver pulled out. It may be fried with bacon, or baked slowly and carefully in the baker-pan with slices of bacon. Do not neglect to try porcupine liver.

Muskrat may be eaten for a change, being careful, in cleaning, not to break the musk-sacs. Use the backs and hind legs only, parboiling as for hare, and then either stewing, or roasting in the baker.

Turtles are nearly all edible. Boiling water kills them at once, or cut off the heads, which bleeds them.

Stew: Crack and pull off bottom shell, remove entrails, cut off head and feet, and skin legs; also cut covering of back shell. Place in hot water and boil till the flesh is free; then remove bones and add an onion, and seasoning. If on hand add a small quantity of sherry or brandy and omit the onion.

Game Birds (grouse, quail, snipe, woodcock, etc.)

must, like other game, hang several days before cooking. Woodsmen often commit the crime of killing a grouse and slapping it into the frying-pan almost before it is cold. Result: tough and tasteless. Grouse are best parboiled before roasting.

To Broil: Pluck if there is time; otherwise skin and draw. To pluck, dip in boiling water. Open down the back, season, lay a thin slice of bacon or pork over each side, and place in the broiler. Broil over hot fire.

To Roast over Fire: Dress and draw and, without splitting, place piece of bacon or pork in the cavity. Set up before the coals on a stick which may be turned as the bird cooks.

To Roast in Baker: Dress, draw, place piece of bacon or pork in the cavity and pin a strip over the breast. Place in the pan of the baker in a very little water. Turn pan when necessary.

Note: Woodcock need not be drawn until cooked, as the entrails come out easily then.

Soups

Canned soups are very good but are admissible only to the easiest of trips on account of their weight and bulk, which consists almost entirely of water. Much better are the *soup tablets* made by Knorr, Maggi, and others. One package of Maggi's costing 5 cents is enough for two persons. Knorr's packages make about 3½ pints each and cost 10 cents. Both have a choice of a large variety of vegetables.

Peameal Sausage (Erbswurst) has already been mentioned above. It makes a tasty and nutritious

soup but is expensive. When somebody on this side of the ocean produces the same thing for half the price it will be well worth taking into the woods. Rather to be recommended are the soups which may be made in the woods of materials already on hand, and which may be divided into soups proper, gruels, and broths or meat-soup.

Potato-soup. Mash boiled potatoes (usually left over) and put them into seasoned boiling water with a couple of onions cut up into small pieces. Cook until the onions are done, stirring frequently.

Corn and *Tomato Soups* may be made of the canned vegetables, should they be available. Add necessary water and boil a few minutes.

Rice Soup is rather insipid made of rice alone, and rice is therefore used mostly as a broth ingredient.

Bean Soup takes some time to make properly, but is savoury and wholesome, and is therefore a permanent-camp dish. About a quart of beans (for 4 persons) should be soaked over night in cold water, and then put into three quarts of cold water and boiled slowly for half an hour. Then drain off the water and add a like quantity of boiling water. Season and boil for an hour and add half a pound of pork sliced. When the beans are soft fish out the pork, mash up the beans with a billet of wood or a bottle, and return the pork. Boil another quarter or half an hour. It burns easily unless stirred often.

Pea Soup (from split peas) is made in the same way as bean soup, but with more water, as it thickens quickly. It burns even more easily than bean soup.

Turtle Soup. Prepare the meat as directed above, season, and boil slowly for half an hour. A little rice

may be used if desired. A dash of brandy helps the flavour.

Oatmeal and *Cornmeal Gruels* consist merely in porridge thinned to the consistency of thick soup.

Broth is a staple luxury of the woods. It is all-comprehensive, being composed of every toothsome ingredient that can be got into the kettle, but the chief element is a piece of some kind of lean fresh meat cut into junks about the size of an egg, which are put into the biggest kettle filled with cold water and allowed to simmer over the fire. When the raw meat is nearly cooked any left-over cooked meat may be added. When the meat shows signs of dropping to pieces add any vegetables, cut up, that may be on hand, as well as a little rice (in fact "any old thing"), and season. Paprika adds character. Skim off any grease that rises. Boil long and eat hot. Broth offers the sylvan cook the opportunity of his life, for the limits of its variety have not yet been discovered.

Fish

Needless to say, fish are best when they are freshest, though a few hours make no appreciable difference. To dress scaly fish, hold by the head and scale to tail on each side. Head, side and belly fins can be cut off at a stroke. Make cuts on each side of the back-fin and take this out. Trout, if small, are cleaned by severing head and gills and pulling them and the entrails all out together. Trout are scraped of slime. Heads and tails of small trout are left on. A slit down the belly will lay bare the entrails of large fish. Wash and salt. A Marble fish-knife is a boon if many fish are in prospect.

Boiled: If camping in a district where salmon, lake trout, and other large fish may be reckoned upon, a napkin or other piece of cloth should always be taken along to pin the fish in when boiling, else it will go to pieces in the kettle. Clean and cut off head, tail, and fins. Either whole fish or pieces of two or three pounds' weight may be used, pinned up in the cloth. Double the whole fish up if too large for the kettle. Most people prefer to place a small piece of pork inside the napkin. Cover with well salted boiling water and boil slowly until done. Eat with butter or fish sauce (see below).

Broiled: Clean and open down the back. Heads, tails, and fins of small trout need not be removed. Place in the broiler with a slice of pork or bacon across each half. Do not broil too long or the fish will lose its flavour, dry up, and harden. Guides generally commit this fault.

Roasted: Clean a small fish, thrust a piece of bacon or pork into the belly cavity, salt on the outside, and impale upon a forked stick, which is then stuck in the ground near the coals and turned occasionally, or the toaster is cut longer and held in the cook's hand. As this can only be done with one fish at a time, it is usual for each camper to roast his own fish. There is no better way of cooking trout and some other fish than this, as all the juices and the flavour are perfectly preserved. It is even better, with trout and other delicate fish, to roast without pork or bacon, in order to preserve the true flavour. In this case the fish must be well salted inside and out. Larger fish may be split down the back and roasted on triple-pronged toasters cut from shrubs.

Skewered: Skewer a half-dozen small fish and as

many pieces of bacon or pork, alternately, sandwich fashion, upon a stick, and roast.

Planked: This is advantageous only with flat fish, like sunfish, though any kind may be planked. Clean, split up the back, and tack with wooden pins upon a flat piece of wood or bark, tacking slices of bacon or pork over the upper part of the fish as it is stretched on the plank, which may be sharpened and thrust into the ground before the coals or merely propped up before them.

Fried: Sever backbone in several places to prevent curling up in the pan. Fish are lightly rolled in cornmeal and fried with sliced pork or bacon. The tendency is to fry too long, thus destroying the flavour. However, if the fish are very small, they may be fried crisp, like whitebait. In this case the heads of small trout are not removed. If no meal is available, dry crumbs will do as well. A drop of lemon juice brings out the flavour.

Scalloped: This has a rather "citified" sound and takes some time, but may be easily tried for a change when time is no object and you have eaten your fish for days in every other conceivable way. Boil four pounds of fish until it flakes. Prepare a *sauce* as follows: Melt a piece of butter, size of egg, add spoonful flour; stir until smooth; do not brown. Add 2 cups water, in which have been dissolved 6 large spoonfuls evaporated milk, ½ teaspoonful salt, and a little pepper; stir until it boils. Place fish in pan in reflector, cover with the sauce, and brown.

Baking in Clay: First find your clay, and there' s the rub, for the proper stuff is very, very, rare. The fish need not be cleaned in any way, but is salted and

filled with bacon, covered completely with the clay, and buried in the hot coals of the fire, where it may remain, if about a pound in weight, for ¾ of an hour; if anything, less. Break the clay and the fish is supposed to fall out ready for eating, leaving his fins and hide adhering to the clay. The entrails will be but a hard mass and may be dropped out, like a bullet. I have tried this often, but, for want of good clay or this or that, never had much luck. More to be recommended is

Steaming in the Coals: Draw the fish without removing head or fins, salt well, and, if desired, fill with pork or bacon. Wrap it in several layers of large leaves previously dipped in water and lay in the hot coals until done. The time necessary for this is hard to judge and must be learned by experience. However, there is a good deal of leeway before the fish is overdone, as the steam keeps it from drying up. On taking from the fire remove the leaves and serve. If you hit it just right you will taste the most delicate fish that you ever put into your mouth.

I am so fond of steamed trout that I never fail to take with me a dozen sheets of parchment paper (the kind in which butter is sold) in which to wrap my fish, as it is often difficult to find leaves large enough in the north woods. Any kind of paper will do. After wrapping up, the bundle should be doused several times in water. "Steam-baked" trout are the *ne plus ultra* of woods cookery.

Chowder: Cut the fish into pieces not larger than two inches square, *removing all the bones* possible. Guides leave most of them in, but it will pay in the end to cut away even the ribs from trout, as they are very bothersome. Cover the bottom of the kettle

with layers in the following order: slices of pork, sliced raw potatoes, chopped onions, fish, hard biscuit soaked (or bread). Repeat this (leaving out pork) until the pot is nearly full. Season each layer. Cover barely with water and cook an hour or so over a very slow fire. When thick stir gently. Any other ingredients that are at hand may be added when the chowder is building. (From "Seneca's" *Canoe and Camp Cookery.*)

Another Chowder: Prepare fish as above. Boil in plenty of salted water three sliced raw potatoes, three chopped onions, a large spoonful of rice, and a little paprika (half cup Julienne if available) for half an hour. Then add the fish and half a cup of diced pork and boil until done. Guides prefer more pork.

Sauces. White Sauce for Boiled Fish: Melt slowly in pan piece of butter size of an egg and stir in thoroughly one heaping dessert-spoonful of flour until smooth; add ½ teaspoonful salt, a little pepper. Make a cup of milk with hot water and Peerless Milk or 2 dessert-spoonfuls milk-powder. Mix well while boiling.

Another. Put 2 tablespoonfuls butter and same of flour into a hot pan and mix into a smooth paste over the fire. Pour over them a pint of hot water (best is that in which the fish has been boiled) and stir in well. Boil up once and season. A few drops of lemon may be added. ("Seneca.")

Mustard Sauce (best for coarse fish): Melt butter size of large egg in pan and stir in 1 tablespoonful flour and half teaspoonful mustard. Boil up once and season.

Sweets

Most campers are satisfied to accept flapjacks,

fried mush and molasses or syrup, and stewed fruit as full value for all sweets; but occasionally a fit of ambition attacks a cook to do something out of the ordinary, in which case he may work it off on one of the following recipes.

Baked Rice Pudding. Boil a pint of rice ten minutes, then add a quart of "milk-water" (made of Peerless or dried milk), salt, a cup of sugar, and (if available) a pinch of cinnamon or nutmeg. Stir up and put into a greased deep tin pan or the kettle. Bake carefully in the fire until well browned (an hour or more according to the fire, which should not be too hot).

Boiled Fruit Pudding. Add to ordinary biscuit dough half a cup of sugar and roll out to a thickness of not over a quarter inch. Place the fruit (stewed apples, peaches, apricots, or prunes, etc.) in the centre and roll up tight in a cloth. Place in boiling water and cook half an hour. Serve with

Brandy Sauce. Melt together butter half size of egg, half cup sugar, and stir in teaspoonful flour and pinch of salt. When smooth add two cups boiling water (little less than two lumbermen's tin cups) and boil five minutes. Take off and add a large spoonful of "something strong," brandy preferred (A. & F.). The sauce is very good without any spirits.

If the camp boasts a deep tin baking-dish or some dish that will do as well, the cook may try a

Baked Fruit Pudding. Dough as for biscuit with half a cup of sugar added. Roll out thin ($\frac{1}{4}$ inch), and line the inside of the greased tin. On bottom put thick layer of fruit (apples best) sprinkled with sugar (and cinnamon if on hand), then another similar layer, and so on until the dish is full, putting

small pieces of butter on the top layer over the sugar, and wetting down with a little water. Sprinkle all lightly with flour and cover all with the rest of the rolled out dough, crimping down the edges to join the inside lining of dough. Make three short cuts through the top with a sharp knife for air-holes and set in hot ashes (but not too hot). In about an hour it should be done. A fork thrust in will tell. Brandy sauce will improve it. I have often made this pudding in the pan of the baker, with a single layer of fruit.

Baked Fruit Dumplings (can be baked in reflector). Make the sugared dough, roll out, and cut into disks about 6 inches in diameter. Place a suitable quantity of fruit (stewed dried apples best if no fresh ones) in the middle of one, lay a second on top, and crimp down the edges all round. When ready place dumplings in the baker-pan and bake like biscuits. Brandy sauce.

CHAPTER IX

MAKING CAMP

If the journey leads through country known to one of the party it will be possible to stop at regular camping places, as these are likely to be found at convenient distances along the route. If, however, another party has camped on such a spot only a short time before, it is well to avoid it or camp at some distance to one side, for the first-comers will have been remarkable people if they have not left garbage enough about to attract swarms of flies. The chief advantage of old camp-grounds is that in all probability there are good water and plenty of wood at hand, the two chief requisites of the camper outside his shelter. If the country is unfamiliar and time does not press it is well to be on the lookout for a good camp-ground not too late in the afternoon, so as to have at least two hours to make camp before dark. If you see a comparatively open place with some level ground, if possible not too close to the water, but in the neighbourhood of some good fishing-ground, disembark there and have a look over it. In the north woods one must not be too fastidious. Ideal camping places, especially in regard to smooth open ground, are too often few and far between, and it is frequently necessary to manufacture a tenting ground by hewing and clearing and pulling. This

is not the least interesting part of camping, and many of the camp-grounds to which I have become most attached were nothing more than tangles of underbrush when we first attacked them with our axes. A good landing place for the canoes is a great advantage, the best being a flat rock or bank with fifteen inches or more of water immediately in front, so that the canoe may be brought side-on to the shore. It is a general maxim that mosquitoes are more troublesome on low swampy ground and near the water than higher up, but the north woods insects are not slaves to rules laid down in books and they will be on hand wherever the camp is situated. The tent should be pitched some feet above the level of the water and on such ground that, in case of rain, no water will run into the tent. If necessary shallow trenches may be dug on the dangerous sides.

Temporary Camps

Having chosen the camp-ground the party, if consisting of four or more, may be divided into two squads, one of which proceeds to clear the ground and pitch the tents, while the other "rustles" wood and makes the fire. If there are but two persons they will do better to work together, at least at first, unless the weather is fine and there is plenty of time, in which case they may divide the labour as between the squads above mentioned until the time comes to put up the tent. The space to be enclosed by the canvas walls should be cleared with the hatchet of all growth that cannot be pulled up with the hands, care being taken not to leave any sharp shrub-stumps standing that will cause discomfort and puncture the poncho or rubber bed. If the ground is soaked a fire may be made

on the site and left burning for an hour or more. Then put out thoroughly. The tent should stand so that the wind will not blow into it or the camp-fire will soon smoke you out. A pleasant view is a boon if the wind will allow. If there are two tents they should be pitched opposite each other at such an angle to the wind that it will blow through the lane between them, which must be wide enough to allow of a big camp-fire. Look about for any dead or weakly trees that might be blown down upon the tents by a gale. If any suspicious ones are found fell them.

Pitching a Wall-tent

More than two men are in the way unless the tent is a monster. Cut the following poles and stakes (for a 7½ x 9 tent):

Ridge-pole, straight, 10 feet long.

Two front poles, forked, about 10 feet long.

Back pole, forked, about 8 feet long.

Two side poles, light, plain, 8 feet long.

Four strong stakes, 3 or 4 feet long.

The canvas is brought to the spot and the ridge-pole run through the holes in front and back. If the tent is up-to-date it will be provided with sleeves about six inches long extending from the top holes and bound to the ridge-pole with their own strings. These sleeves prevent insects from entering the tent at those points. The back forked pole is then driven perpendicularly into the earth and the ridge-pole laid across it. In front the two longer forked poles are driven into the earth, one at each side, and crossed at the forks, over which the fore end of the ridge-pole is laid, the three poles being lashed together. The four stakes are then driven firmly into the earth,

each about a yard from one of the tent corners, and the corner guy-ropes attached to them. The tent is then firmly pitched, but the other guy-ropes must be made taut so that the canvas is well stretched. This is done, not by staking down each rope, but by laying one of the side poles on each side in the angle made by the corner stakes and their guy-ropes, and lashing the other guy-ropes to the side pole. If necessary the side poles may be lashed to the corner stakes. This in my experience is all that is needed, for unless there is a very gale blowing I never use tent pins with tents that are provided with sod-cloths inside, upon which stones, poles, or extra duffle may be laid, thus pinning down the bottom of the tent. Tent-pins may be used of course if thought necessary. The above may seem a complicated way of pitching a tent, but in practice it is the very reverse. Fifteen minutes are sufficient to cut and trim the poles. Once up the tent is there "for keeps." The two fore poles need not be forked, as they are lashed with the ridge-pole. In the camp shown in our frontispiece it will be seen that we used two canoe setting-poles.

Of course the great advantage of the crossed poles in front over the old method is, that there is no perpendicular upright in front to bar entrance to the tent door.

I could never see the use of guys for wilderness tents; it is easier to take a turn round the stake.

Pitching A-Tents

The important thing in pitching a tent in this manner is to have the corner stakes properly placed in order that the tent shall be straight. Most old woodsmen are somewhat careless about pitching tents and get them up anyhow, but

a little care and a straight eye will make a good job of it with little bother. Wall-tents are rather heavy for rope-ridges, which, however, are generally attached to A-tents, sewed along the ridge with a loop or extra rope projecting at each end, the rope being stretched between two convenient trees, or one tree and two forked poles crossed, the end of the rope being fastened to a stake. Where no trees are available the crossed poles may be used at each end. If the tent is suspended between two trees it will sag and must be braced up by placing forked poles under the rope at each end and near the tent-corners. A-tents may also be pitched with poles, like the wall-tent, and I for one prefer that manner, as the tent is stiffer when so pitched. Tent-pins are necessary, and they should be stout.

Pitching a Lean-to

Cut two forked poles and a ridge-pole which is laid across them. The dimensions should fit the tent. The top of the tent is tied to the ridge-pole by the ropes provided for that purpose at regular intervals, the pole being *under* the canvas. The tent, if up to date, will have a front which may be rolled up out of the way, or thrown back over the tent, or staked out in front as a portico. The three poles are braced in front by two guy-ropes, one at each corner. At the back a stout stake is driven at each corner and the corner ropes attached thereto. A pole is then laid from stake to stake (outside and underneath) and the remaining guy-ropes tied to it. The tent should have a sod-cloth, which will render pinning down unnecessary, but this may be done at two or three points at back and sides. Our frontispiece shows a lean-to tent with front rolled up.

A lean-to should be pitched with particular attention to the direction of the wind, so that smoke and eventual rain will not enter. On the ground from pole to pole in front a small log should be laid. (See frontispiece.)

For the present we will ignore the labours of the cook and wood-cutter, and proceed to "fix up" our tents.

Preparing the beds is a task too often left until dusk, especially when blankets are used and some kind of a mattress must be improvised. The popular one is the browse bed, and its aromatic elasticity has inspired a whole poetic literature of its own. Now the truth about browse beds is that, if well made, they are good, nay, more, they are delicious. But a carelessly made one is hard and humpy, and most are of this description, for the reason that the right kind is not made in a few minutes but in thirty at least. The best material is the balsam fir, on account of its delicious and wholesome odour and the resiliency of its boughs. Hemlock and spruce come next in the order of fitness. Fell and drag a couple of thick young trees to camp and lop off the fans, the more the better. It is immaterial whether you begin to lay the bed at foot or head, but for the sake of convenience the head is the better, as then you back gradually out of camp. You therefore lay a thick row of fans at the back of the tent, butts towards the door and convex side up. Stick them in almost perpendicularly and bend them over; the idea is to get springiness. Lay the next row six inches below the first, *i.e.*, thrusting in the butts that distance from those of the first layer. Proceed

Bed-making

on this plan until the whole ground is covered with a thick, smooth, springy mattress, paying particular attention to the rows that will come under the hips. Over this bed spread the tarpaulin or rubber blanket or ponchos, and lay the blankets or sleeping-bags over all. The trouble with many browse beds is that the evergreen fans are merely strewn over the earth and not thrust into it; they therefore flatten out hard at once. The best browse bed will harden in two or three nights and must then be remade, some of the fans being renewed. If one cares to take particular trouble a layer of thick moss may be put down under the fans to add softness. In semi-civilised districts meadow-hay stacks may be borrowed from with advantage.

Bed-tick

Another mattress is made of a portable empty bed-tick about 6½ feet long and 2½ wide, which is filled in camp with browse, grass, leaves, or any available duffle.

Stretcher Beds

There are two kinds of stretchers, both of stout canvas, preferably brown. One is of a single thickness with pockets at the sides for poles; the other is double so that it can be filled with browse, hay, or leaves, and is therefore to be preferred, being softer and much warmer, as the single stretcher makes a cold mattress. The method of use is as follows: logs six inches in diameter are laid at head and foot and slightly levelled on top. Stout poles, flattened at the ends, are thrust through the pockets of the stretcher and nailed to the logs. The poles must be springy but stout enough to keep the

sleeper from sagging to the ground. On breaking camp the nails are withdrawn and preserved. If the logs prove too low flat stones may be placed under them. Some lay the poles in grooves cut in the logs or over forked stakes, but these methods are not conducive to the proper rigidity of the poles, which is needed to keep taut the canvas. This must be of the stoutest variety, or it will speedily lose shape when used for this purpose. A sheepskin makes a warm bed of a stretcher, which is then pretty nearly ideal, though somewhat difficult to put up. For permanent camps there is nothing better.

Of course those fortunate persons who use air mattresses need not bother themselves with all these bed-making problems. (See *Sleeping-bags* under *Personal Outfit.*)

FIG. 27.—Candlestick of Bark and Split Stick.

Tent-furnishings

A line may be stretched under the ridge-pole from which to hang articles of clothing, etc. Forked sticks may be set up along the sides of the tent to lay guns and rods on, though, if the tent has a sod-cloth, as it should, they may be laid on that, as the cloth is waterproof and the weight will help make the tent tight. If mosquito-bars are in the kit get them out and fasten them up. Place every man's knapsack or other personal bag at the head of his bed. Clear the space in front of the tent of underbrush.

Having made the tent habitable, proceed to put up the dining or provision fly, which is either brought along separate or improvised out of unused ponchos and rubber blankets, thrown over a framework of poles, and secured with marline. (See full-page picture facing page 70.)

Dining-fly

No furniture is admissible in temporary camps, unless an exception be made in favour of a light folding table, or a roll-up table-top, such as may be had of a dealer, but the latter costs $2 and is too small to be of much use (2 x 3 ft.) If carried a frame of forked sticks may be constructed for it.

Meantime the cook and wood-cutter have been busy. The north country produces hard and soft woods, the former being generally considered exclusively suited to making fires, as they burn slowly and give lasting coals, while soft woods burn out rapidly and are apt to spark, endangering the tents and the forest. The best north country firewoods are, approximately, in the order of excellence, hickory, the oaks, ash, black and yellow birch, maple, beech, white birch, etc. Dry pine among the soft woods is much prized, especially in wet weather. It may here be remarked that the birches and maples are sometimes called soft woods in the north. The regular soft woods are used only in emergencies. Dry bark, especially that of hemlock, makes a quick, hot fire and is therefore liked for cooking. Driftwood is generally soft and therefore good only to start fires with. Green wood burns best in winter, having less sap. It is almost exclusively used at all seasons for camp-fires that are meant to last.

Firewood

THE DINING-FLY

For kindling, the forest staple is white birch-bark, the woodsman's friend, which will ignite even when moist. It is usually to be found everywhere, but I always have a dry piece stuffed in somewhere in the kit; it may save time. Pine knots are wonderful to start a fire with.

Our axeman fells several young hardwood trees as near camp as possible, dresses them, and hauls them to the fireside, where they are cut into suitable lengths, say four feet. About half the pieces are then split in two.

Fireplace

The cook has arranged two short rows of stones, about a yard apart, the larger stones at the back, ranging in size towards the front. The gap at the back is filled either with one or more large stones or a big green log. Between the stones the cook starts his fire.[1] Having prepared a bundle of kindlings of dry hardwood and dead branches, he lights a piece of birch-bark and adds the kindlings one by one until the blaze is able-bodied enough to stand larger billets, which are then laid on, followed by the four-foot pieces which are laid across the stones. The camp-cranes already described are then cut and the kettles of water hung over the fire ready for boiling. When the small logs burn in two the ends are shoved into the fire and other pieces are laid across, always horizontally. Woodsmen never build a fire by placing the wood at right angles, as most amateurs do. (See *Getting Meals.*) Supper is soon ready, and while it is being discussed a kettle of fresh water is heating to wash the dishes with. The stones are sometimes dis-

[1] See also page 125 for cookingfire.

carded in favour of fire-dogs, or hand-junks, of wood. I prefer the stones.

Camp-fires

When the eating is over and the trip to the neighbouring trout pool has been discussed, the cookee proceeds to make the fire for the night. He begins by seeing that the two front corner stones are of such a size that any logs rolling down from behind will be stopped by them and not keep on into the tent. He then lays as many of the biggest logs across the stones as possible, heaping them up behind, and, if necessary, driving two long stakes at the back to lean the logs upon. As the wood in the middle of the fire burns out the logs will settle down, one by one, and thus the fire will keep for many hours without replenishing. If the night is likely to be cold, one man must be deputed to rise at least once during the night and lay more logs on. Very likely one operation of this kind will be sufficient unless it rains.

It may be remarked here that people who go into the woods armed only with pretty little pocket-hatchets are naturally not able to enjoy a camp-fire that *is* a camp-fire, and I don't know that they deserve to.

Making Fires in the Rain

Look about for two things, birch-bark and a dead stump. Split the latter and get some dry wood out of the middle. If you have no hatchet or axe with you hack away with your knife and patience will be rewarded. Keep the dry wood gained under your coat and don't begin your fire until you have a fair supply, enough to withstand the wetness of the wood you will have

to feed the fire with. You can make a fire without matches in the rain—*on paper*, if you have this, that, and the other; *really* you can do it once in a thousand times. Better adhere strictly to the rule never to go abroad without your safety match-box well filled with wind-matches. In dry weather your chances without matches are a little better, for you may be able to use the crystal of your watch as a burning-glass; or you may combine a piece of punk with some lint scraped from your handkerchief and rub it in the powder taken from a cartridge, striking a spark into it from flint or quartz with the back of your knife. These things sound lovely on paper, but belong chiefly to the boys' story department, so far as their utility to the average camper is concerned.

When there is no camp-stove the fire may be built against a ledge of rock, or a wall built up artificially. This is to preserve and radiate more heat. **Winter Fire** The wall may be made of green logs if no rocks are at hand, but stone is far better. There is an Indian saying: "White man make big fire—sit far off; Injun make little fire—sit close up!" **"Injun Fire"** This custom has its origin no doubt in the hunting and fighting predilections of the Amerind, who did not care to betray his whereabouts to his enemies or his game. The "Injun fire" is made with a centre nucleus, from which the rather small sticks radiate and are shoved into the middle as they burn off. It is all right when you want to lie low, or when you can't make any other!

When a stay of a fortnight or more is projected, especially if the camp-ground is within easy reach

by waggon or boat, there are practically no limits to the comforts that may be planned. The tents or camps may be provided with board or plank floors, thus securing dryness and cleanliness. Camp tables and chairs, wall-pockets, hangers, meat-safes, patent lighting-apparatus, and a magnificent variety of edibles may be taken along. A stone or plank pier may be built for the canoes. A chopping-block may be set up; a store-shed built; and every member of the party is welcome to bring what Mr. White comically calls his favourite "patent dingbat." A good-sized table should be built upon cleated uprights, with benches of halved logs on each side of it.

Permanent Camps

In a permanent camp discipline is more important than on the *Wanderschaft*, though regularity of duties should ever obtain. There is always at least one shiftless, lazy cuss in camp who persists in leaving the axe anywhere and everywhere and other articles too, and who throws garbage and empty cans all over the place. I know one wight of this kind who was—partially—broken of his slovenly habits by finding such things as he thus left lying about pushed into his sleeping-bag, when he wearily essayed to thrust himself between the blankets. He was left out of the next party.

Camp Discipline

There should be a special dumping-place for tin cans not too near the camp, and all the garbage that can be burned should be thrown into the fire, that best scavenger of all.

CHAPTER X

WOODCRAFT

WOODCRAFT is the "knowledge and skill in such things as belong to woodland life and occupations," according to which definition our whole manual is but a setting forth of this art. But among woodsmen it is understood to be particularly the faculty of "being at home" in the wilderness; of living on intimate terms with nature; not only of knowing her inmost secrets but also how to use those secrets for the forest-dweller's comfort and safety.

It is very evident that a degree in such an art can be obtained in one university only, the school of the woods, and the course is not one year nor two but many. No manual can teach it, and all the teacher can do is to point out its main features, and state a few of the problems to be solved and the best way to attack them.

Woodcraft may be divided into two parts, first, ordinary life in camp, comprising shooting and fishing; and secondly, travelling. It is for the most part with the second of these sections that we have to do here, and under it fall such subjects as walking, following trails, threading the pathless wilderness, signs of direction and weather, getting lost, and the use of the compass. For those who follow beaten roads, keeping always in touch with civilisation and

sticking closely to their canoes, no very great knowledge of woodcraft is necessary, but the need of it increases with every step taken from one's base into the wilderness, and the supreme test of it comes when one reaches regions that are miles from any trail and unknown to the traveller, especially should he wander from his chosen path and have to bivouac for a night or two before attempting to find camp or companions again.

Walking

The reason why a tramp through the woods does a man more good than a walk the whole length of Fifth Avenue is, that the townsman walks on a level, in consequence of which only a limited number of muscles are used to any extent, and because he wears heels, upon which he plants his feet solidly. It is not necessary for him to strive for any more balance than will keep his silk hat on straight. With the woodsman, however, the balance is everything, because he treads a very uneven road and it is a matter of importance where and how he puts down each foot. With him walking is a movement that necessarily exercises every muscle in the body, even those of the hands, which he must often use to preserve his balance or to push aside obstructing boughs. His limbs are in a perpetual state of readiness to move in any conceivable manner, as the exigencies of the trail may dictate. This and the absence of heels (at least of any height) give his gait a certain alert looseness. By instinct he knows where to plant his feet, avoiding anything loose or slippery and seeking the solid places. If he is a hunter he will also go shy of all sticks that will snap and rotten logs that will let him through

with a crash. His gait is flat-footed; he feels with his toes; he does not turn his toes out; his poise is more forward than that of the plaster-walker. Give the latter moccasins and a couple of weeks in the woods and he will soon gain an inkling of the difference.

Keep the feet soft by frequent ablutions. Long walks with shoes filled with water are bad, as the feet easily become chafed. Rather wring the stockings out once in a while. If unused to moccasins bring a pair of light straw insoles with you, or cut a pair out of birch-bark. Have stockings and moccasins fit well; any folds will speedily chafe the feet badly. Bathe *sore feet* at night in warm water and apply vaseline or tallow. If not well in the morning, coat the inside of the stockings, as well as the feet, with soap or tallow. A very sore spot should be covered with a piece of surgeon's plaster, which will effectually prevent chafing. Blisters should be threaded through and the thread cut off at each side of the blister, leaving a piece within to facilitate the escape of water; cover with a vaselined rag. On no account pull any skin off. Don't bring corns into the woods; have them removed beforehand. If they form put raw pine pitch on them.

Foot Hygiene

Following a trail is easy so long as the path is much-travelled, but requires a certain knack to keep on if old or "blind," *i. e.*, badly marked, with growth undisturbed by cutting, or freshly grown up. Here close observation is necessary, to discover traces of former travellers, stunted growths, chafed or scraped logs, grown-over blazes,

Following Trails

etc. Most old trails are blazed with the axe, especially those that are much used. New ones are blazed and bushes are broken down over the path every ten or twenty feet, the broken part pointing in the direction the trailer is taking. On the return he has but to follow the blazes and breaks. Tote-roads, logging-roads, and hunters' trails often fork. When you pass such a fork place a stick in the road pointing to the right direction. When breaking a trail for yourself through unfamiliar country blaze it like the old ones. Do not make the blazes on the side of the trees next the trail, but either on that facing you or the opposite one. On the side facing you, if you are going *from* camp, make one blaze, on the opposite side two blazes. Then if you cross the trail anywhere from the side you will know which direction leads to camp. This rule, however, is more honoured in the breach than the observance, and must not be blindly relied upon when old trails are followed, as most woodsmen blaze merely by taking clips at the nearest side of the trees as they go by.

In the Pathless Wilderness

Never start out to traverse an unknown part of the woods without observing certain old but proved rules, and, though exceptions must sometimes be made, let them be far between. The first and most important is to know at very least the direction of your designed destination and the general character of the country through which you must pass. If possible draw a rough plan from the description given you, and talk it over with your informant. Mark in your mind or on the plan as many landmarks as you can hear of,

streams, roads, camps, hardwood ridges, swamps, lakes, etc.

Secondly, never, unless absolutely necessary, leave camp on such a journey (if at all long) if a storm is obviously approaching. One gets lost sooner in bad weather, especially in a snowstorm, and it is no joke to bivouac without tent or blanket in searching snow, rain, or even wind.

Thirdly, invariably carry in your pocket your compass and an emergency ration (see *Personal Outfit*), and sling a tin cup at the back of your belt, as a hot cup of bouillon, tea, or whiskey cheers and warms one up mightily. If slung in front the cup will be in the way and will strike against bushes and your weapons, making a racket. A good knife you will always have with you, and for uncertain journeys a hatchet in a belt-sheath is a good article to have in case of bivouacking in the open. Your salt-box and full waterproof match-box are absolutely indispensable, especially the latter, as the Irishman might say. Ammunition, and possibly a few yards of fish-line and a few flies, will form part of your light burden. In case your chances of sleeping in the open are large, a small tarpaulin or even a light blanket may be carried on the back.

Fourthly, never start out on any journey from camp, *i. e.*, in unfamiliar country, without giving your companions, should you have any, an idea where you are going, at least in a general way. Signals may be agreed upon. The old distress signal (little observed, however) is a single shot followed, after a few moments' pause, by two others in quick succession.

When you cross brooks note the direction in which

they flow. If you come to a lake and wish to round it, keep fairly close to the bank, after first noting some tree, cove, or island on the other side from which you wish to resume your journey. It is dangerous to try short cuts by deviating from the sight of the water, as a lake may have hidden bays and a stream awkward loops, so that you may be led straight away from its true course, and find your short cut the longest way round. There are two ways of reaching a given unfamiliar point. One is to go by compass or sun and wind, and the other to follow certain natural features of the landscape that have been described to you. The Indians combine both, their innate and practised sense of direction greatly aiding them.

Path-finding

The more familiar you are with trees the lighter will be your task, for trees tell the woodsman lots of things. The natives, too, in giving directions, will be sure to refer to that spruce or that old hackmatack. A man should make up as soon as possible for the weak points of his university career by getting acquainted with trees, shrubs, and berries, as well as the animals and birds of the country. The traditional fondness of the Yankee for asking questions will come in handy here, and the guides are long-suffering; in fact they are never averse to showing their knowledge. Never pass an unfamiliar tree without asking your companion its name, and the quality of its wood. All that kind of thing makes for good woodcraft. In the matter of landmarks choose only very exceptional features, that are not likely to be duplicated, or nearly so. After you have passed a landmark look back at it, as its appearance from the far side is likely to be quite different.

Whether you intend returning over the same trail or not, blaze a tree now and then; it may be of help in case of accident.

The "old woodsman" sniffs with contempt at the mention of a compass, and certain it is that the best trailers in the world, the Indians, did not use it, and even to-day hardly ever do so. If you have a watch and the sun shines you have a compass to hand (see *Personal Outfit* under *Watch*), and even without the watch the sun will tell you the points pretty exactly. There follows too another argument: without a compass you will strive more eagerly to read the signs of nature and will the more readily become a woodsman. Well and good; leave your compass at home if you like, alongside your watch. But there come times in the forest, especially to amateurs, when a compass is an almighty handy article. You are lost or nearly so, and the sun is hidden in storm-clouds. You are nervous and tired, and apt to misread the natural signs of direction, never infallible in themselves. Let us say (and strongly advise) that you have a compass with you. But it will be of no value unless you know how to use it. The rules are very simple. Having made up your mind in what direction you will proceed (Aha!), hold the compass in both hands at half-arm's length (keep your rifle and hatchet out of the way) and take some natural feature in the correct direction as indicated by the compass. Go straight towards this landmark, consulting your compass *every two minutes* in case you get out of sight of your mark. This frequent consultation is the most important point in the use of the compass.

How to Use the Compass

as many a man has deviated so far from his course by a neglect of it as to doubt the accuracy of the compass and get lost in earnest. Do not quarrel with your compass; in fact never buy one in which you have not implicit confidence. If some natural feature makes a detour necessary, note some landmark that is big enough to be seen from any direction, and which you can find after rounding the obstruction, be it lake, ravine, or what not. You can then start afresh.

The parenthetical expletive occurring above calls our attention to the one weakness of the compass, a very excusable weakness: it cannot tell us in what direction we wish to go. We must make up our minds on that question without its aid, and this indicates how all-important it is to know at least the general "lay of the land," before venturing into unknown tracts.

Natural Direction Signs

The first is the sun, which rises in the east and sets in the west, or, in autumn and winter, a point or so to the south of east and west. If therefore in September the sun is at its highest and you stand back to it, *i. e.*, so that it throws a shadow directly before you, it is evident that you are looking north. The other points follow naturally. At other times of day, except sunrise and sunset, it is somewhat more difficult to judge of the exact points of the compass, but an approximate estimate is always possible. On cloudy days a slight shadow will sometimes be cast on the thumbnail, or other bright surface, by a sliver held upright thereon; showing about the sun's direction. The next help is the wind, but this depends upon the sun. The rule

is to observe the direction of the wind at sunrise or soon after, and, *so long as it holds true*, the wind will be your compass. If very light its direction can often be determined by holding up a wetted finger. If the stars are out the North Star is easily found by following the direction of the two lowest stars composing "The Dipper" ("The Great Bear"). (See illustration.)

There are several old rules anent trees that are *generally* true, though subject to many exceptions, for which reason the traveller will do well to take note of them, but not to trust them absolutely if uncorroborated by other evidence. The oldest says that the tips of evergreen trees (in our north woods) generally point towards the north. Another has it that the bark of well-grown trees is thicker on the north and north-eastern sides than elsewhere. A third makes moss to be thicker on the north side of trees than on the others, a condition following from the longer retention of moisture on that side, which is least exposed to the sun.

Getting Lost

There are two varieties of getting lost. The less serious is to miss one's way for a time, while knowing enough of the "lay of the land" to be sure of coming out right at last, in other words getting temporarily lost. The other is to stray badly in an unknown country with the prospect of getting deeper into the wilderness and having to shift for oneself for a day or two, with worse possibilities beyond.

The first thing to do when one comes, always reluctantly, to the conviction that one is lost is negative—don't get flurried. In warm weather the experience won't hurt you provided you are healthy, for, with any grit and resource, you can live on the country for several days with little harm, and survive to enjoy the telling about it. In cold weather it is a more serious matter, but for this very reason you will need all your faculties kept unflurried and in best working order. Sit down, put on a pipe, and marshal the known facts you have to go by, for there will always be at least one or two. You are aware, for example, about how far you have come and nearly always the general direction. Three courses are open to you. You may elect to retrace your steps to your starting-point; you may choose to go ahead with the hope of reaching your destination somehow; or you may camp where you are and wait for the morrow. If you are quite lost and the day is drawing to a close, the last alternative is best. Before making up your mind, however, do a lot of thinking, and, once again, don't allow any panicky feelings to enter your heart. Most of us have got lost; the situation is not so tragic as it often appears to the tenderfoot. If you are within a few miles of camp give the distress signal with your rifle. The next thing is to climb a tree or a bluff and have a look at the surrounding country; the outlook may tell you something valuable. You will see lakes, watercourses, ridges, etc. Very likely you will at least learn in what direction *not* to go. If you left a known trail within an hour or so, try to retrace your steps for about that length of time, and then, after carefully noting the place by landmarks, make

a wide circle with a view to striking the path. Failing this remember what you saw from the lookout tree and decide upon a course down some valley that evidently leads to the low land. It is a fact that, if you go far enough down-stream, you will come to civilisation or its beginnings, though this may take longer than your strength will allow. A log-road offers a chance for good walking and may lead to some camp, old or new, or it may also bring up at some lake, which the loggers crossed on the ice. In that case go round the lake in the hope of finding another road on the opposite side. When you have done your best and there remains to you only an hour or so of daylight, make your preparations for a bivouac. One comes reluctantly to this decision, but the real sportsman nevertheless welcomes it as a true and interesting test of his abilities. To be "up against it" is always a joy to him.

Bivouacs

The problem is to secure shelter and warmth, and your preparations will last at least a full hour if you have a hatchet, much longer without it; therefore begin betimes. If you can find a big rock with a flat side build a lean-to (see *Temporary Camps*) about six feet from this side. With a hatchet poles are soon cut and hemlock, spruce, or fir bark riven from the trees in quantities large enough to cover the back. If not then cover with evergreen boughs. Your fire is built against the big rock and the heat will be radiated into the lean-to in a most comforting degree. If this fire and camp combination can be secured the traveller is very fortunate, and his only care will be to have *enough fuel* on hand for the whole night, for it is most disagreeable to

have to get up in the dark and cold to "rustle" more. If you are axeless you will practically be reduced to fallen wood, old pine stumps being best. Very long logs and poles can be laid across the fire and burnt in two. Whatever your fuel, *have enough.* If the ground is wet build a fire first where you intend to lie (before putting up the lean-to), and dry it out. You need not wait until the embers are absolutely dead, but heap boughs over the place, for a bed. If the night bids fair to be cold it is better to lie sidewise to the fire. In autumn or winter a good "wrinkle" is to place a number of stones about six or eight inches in diameter next the fire, so that they shall get hot. These can then be placed at the feet, back, etc., as needed, and will be found wonderful comforters. When a stone loses its heat it is replaced near the fire and a hot one taken. If too hot wrap the stone in birch-bark, or wait for it to cool off.

If no rock or large log fireback can be found on suitable ground (look out for the wind) one must be made by piling up rocks or logs. Stake down the backlogs and place rocks in two parallel columns running towards the camp, for the wood to rest on, so that the fire will be rather above you as you lie, giving more heat and less smoke.

If snow is on the ground clear off a space large enough for camp and fire-place. This space is best made wedge shape, the fire being placed at the apex. The higher the snow-walls the better, as they help to confine the heat. The snow may also be used to make a foundation for the lean-to. Remember your boyhood days. Even an Eskimo igloo is a possibility if the snow is soft, but it should have an open front to let in the heat, as a real igloo, with a hole in the top

to let out the smoke, is long and difficult in the making. Before dark look for water and have a cupful on hand for the night.

Food

The lost man with only an emergency lunch in his pocket will instinctively look about him for chances to replenish his larder, being meanwhile very economical of his present store. If he has a "shooting-iron" with him all will be well, for he will be in very hard luck if he cannot bag enough to eat among porcupines, squirrels, grouse, hares, and many other animals and birds not reckoned as game, not to speak of the chance of killing a deer, bear, or even moose. (For a man lost in the forest the game laws are non-existent; his whole life for the time being is but the cult of one other law—that of self-preservation.) Tough and unpalatable birds, like owls, sheldrakes, and crows, go better roasted than boiled, which is an advantageous fact for our voyager. If it is spring he will know where to look for eggs. He should have a piece of fish-line and some hooks or flies in his pocket, in which case he will have trout, or at least perch, for dinner. Frogs' legs are tidbits; turtles good. Some kind of berries will likely be in season, and his dessert is assured. Probably he will come out of the scrape with a determination to make himself more familiar with the things of the forest that may be eaten, for he will avoid many a beautiful red or blue berry for fear of poison; and he will do right, for in his situation it is better not to run the risk of sickness and consequent weakness. In regard to edible plants in the wilderness there is little use in describing the thousand and one varieties to the average camper, for he would not be able to find or

recognise a half-dozen of them without long study and experience. In my opinion lists of such things are hardly more than encyclopædic in value. The woodsman learns to know only those plants, berries, etc., that are actually pointed out to him in the forest. Among growing things that are of practical benefit to the lost man we may mention acorns (eat roasted), other nuts, flags, dandelion, marshmallow, milkweed, many kinds of ferns when young, and many wild fruits, mostly berries. It will be seen that the chances of securing a good deal of food, before attacking one's belt and moccasins, are good.

Weather Indications

It is a good plan, on coming into a new country, to inquire of the natives regarding the prevailing weather signs and probabilities. For instance, there is always one wind that commonly brings rain, another that prevails only during fair weather, etc. Every district, too, has its old traditional signs, such as, for fair weather: cobwebs on wet grass; crimson sunset after a bad day; rainbow at night; heavy dew in the evening; swallows flying high. Bad weather indications: woodpeckers and bluejays very noisy; swallows flying low; sun shining through watery haze; rainbow in the morning; a halo round the moon; dark clouds blown rapidly under lighter ones.

These are but a few of the ancient rules, many of them being good enough, at least, to take fair warning by.

CHAPTER XI

NATURE PROTECTION

NOTHING so distinguishes the pseudo-sportsman as his utter subordination of all phases of nature to his every whim. He is the man who fails to put out his camp-fires; who fills his creel with fingerlings; who pots robins and blackbirds with his .22 and afterwards boasts of his slaughter; who shoots and catches more than he needs of game and fish; who leaves his camping-grounds in a filthy condition; who in a word inscribes on his banner the arch-selfish motto of Louis XV., "After us the deluge!" He is truly a disgusting personage in the eyes of the genuine woodsman and nature-lover. At bottom, however, aside from his essentially vulgar composition, he is generally only the result of the faulty education of the present, for which we all in turn are responsible. It is an extraordinary thing that in our country, where undoubtedly more money is spent for education than anywhere else, two weaknesses stand out prominently: the inability of even the great majority of college-bred men to write and speak really good English, and the ignorance shown on every hand of the common facts of natural history. The causes of these weaknesses are not the same, in fact they would seem to be widely different, for, while English receives far more attention here than in British institutions, natural history

gets practically none at all. Does it not seem ridiculous, to put it mildly, that ninety per cent. of American youths graduate from school or college taking with them the fond beliefs that the porcupine throws its quills, that the cat sucks the baby's breath, and that every hawk is a "hen-hawk"? The college man is taught political economy, but has to learn later in life from the Audubon Society and the Smithsonian experts how intimately connected with national economy is the preservation of our birds. It would be a waste of words in this business age to speak of the æsthetic side of the subject, but it does seem a wonderful and a disgraceful thing that most of us go through life cheek-by-jowl with thousands of animals and birds, while at the same time nine tenths of us could probably give a less accurate description of their habits than we could of the harpies or the phœnix or the chimæra! A "well-educated" person would scorn a fellow-man who displayed ignorance of the latter beast, but would be more than likely himself to be quite unable to distinguish between a weasel and a ferret, or a junco and a chickadee.

The remedy for this faulty education lies primarily in the hands of parents. The father can, if he will, easily train his boys and girls to habits of reticence in taking life, both by example and instruction. In our country the mass of family bread-winners have little time to devote to their children, but even these can and should see to it that their boys are provided with the right kind of books. Those of us who believe that the millennium is still some distance off, and that human nature will not be essentially modified for at least a few centuries to come, look with favour

upon the encouragement of our schoolboys to use firearms, of course under proper restraint and wise instruction. There is nothing so stimulating to a boy's independence as to place a gun in his hand and let him roam the fields and woods. But parents in most cases confine their efforts to equipping their boys with firearms and ammunition, and do not even place a copy of the State game-laws in their hands. The natural consequence is that the youngsters go afield and bang at anything and everything that runs, flies, or swims. Habits of slaughter and the contempt for law are inculcated just at the formative period. Every boy to whom a gun or small rifle is given should be told exactly what game he may shoot and how much of it, and his father should scrupulously investigate the bag made. Best of all, his first hunts should be in the company of an elder sportsman. In a word an effort should be made, by showing interest in the boy's improvement in shooting, by warning him against the killing of beneficial and ornamental creatures, by appealing to his sense of fair-play and teaching him to look down upon the promiscuous killer as a self-exposed duffer, to make a true sportsman of him. There is no need to despair if he brings in a chipmunk or even a robin from one of his first expeditions. A good fright or two should improve his conduct; if not his gun should be taken from him for a time, or, if he prove incorrigible, then permanently, or until the lapse of a few years brings discretion and self-control. This last word is, after all, the key to the whole situation. Self-control is the most important trait of a good citizen, especially in a democracy; and the earlier in life a lad is taught this

incomparable virtue the better for him and for the world. In the United States I know of three sports that will teach a boy self-control most efficaciously; they are the ownership and use of firearms, boxing, and the game of football. The opponents of football have failed to recognise in it this highly important educational function, though it must be confessed that, until recent years, the authorities placed altogether too little restraint upon the players. In boxing and American football the opportunities for losing one's temper are especially plentiful, and, since keeping it is an absolute necessity if ability is to be attained, the educational value of these sports is evident. With shooting, caution, respect for law, and the bridling of the primitive killing-instinct are attained, as well as exercise in the open air, training for eye and hand, and a knowledge of natural history and mechanics.

I take the opportunity here of quoting from a recent letter of mine printed in *The Outlook*, on the morality of such sports as shooting and fishing.

The critic is commonly a man who is not himself interested in sport. He forgets that angling and the chase have a venerable history, beginning with the first efforts of man to provide food for his family, and that their development has been steadily along the line of march of civilisation, until at the present time the American sportsman, who abhors the slaughtering game drives of imperial huntsmen and British pheasant and partridge shooters, stands as a model of the humane woodsman, who kills as little as possible and always with the minimum of suffering to the quarry. The critic cannot possibly appreciate the love and interest of the sportsman for the implements of his art, their development, intrinsic beauty, and delicacy of workmanship; the engrossing interest inspired by observing the working of new rods, guns, etc., the incomparable fascination of the study

of the habits of fish and animals, which must be mastered before success can be hoped for in the chase; the pleasure of watching the intelligent working of his canine friends; the cumulative joys offered by an expedition to good trout waters, with its delicious anticipation, the delight of the preparation of and addition to the tackle and outfit, the crescendo of interest caused by the approach to the grounds, the choice of implements, and at last the supreme joy of the actual practice of an art every detail of which has been perhaps for years, a well of study and delight. The layman cannot feel a tithe of the fascination, the compelling witchery, of all those things so beautifully set forth in Kipling's "calling of the red gods." He forgets that woodland sport takes its devotees to the pure bosom of nature, whose every phase is replete with beauty, with the spirit of human heroism and wholesome bodily effort, of good fellowship, of love for nature and forgetfulness of the unspeakably disgusting vulgarities of the "civilised" battle for life. He refuses to believe that some men crave the strenuous, and that for these photography or pedestrianism alone will not suffice to allow the working off of energy or the proper storing up of health for the unnatural tasks which our artificial life demands of all save an infinitesimal few. He cannot see the charm of self-discipline in nerve-racking moments when the sudden pulling-himself-together for a cool and supreme action regulates a man's mental poise for perhaps a lifetime.

The sportsman would have many other things to say in his defence. He would adduce the beauty of the trophies, the delicacy of game food eaten in the woods, but very particularly the fact that he never kills an animal or a fish the body of which he cannot use legitimately, that he limits his bag strictly, and that he kills, in the great majority of cases, quickly and without pain.

And now, having enumerated a few of the advantages of these pastimes which make healthier bodies, purer hearts, and better citizens, the sportsman, if he is really frank, will confess that the one poisoned swamp in his paradise lies in the act of killing. But, while admitting that this is a sad and régrettable necessity, he sincerely and undoubtingly believes that it cannot for a moment outweigh the benefits and delights of legitimate hunting and fishing.

In regard to the question of "fair play," if that were strictly and logically adhered to, what would become of the slavery of domestic animals? One must admit that man tyrannises over them, and also that wild animals are no match for modern weapons. If, however, fair play means more than equal chances for the game to escape, then nearly all hunting and fishing, when legitimately practiced, are fair, since the quarry actually does escape far more often than it is brought to bag. If this were not so, half the joy of the chase would vanish. *Res severa verum gaudium.*

Possibly the sportsman's justification may be found in the above, but will a people accustomed for ages to magnify the moral (not to say sentimental) at the expense of the æsthetic be able to render it justice?

It is by no means only the small boy and the ignorant and irresponsible "dago" who are given to shooting at all kinds of beasts and birds indiscriminately. Business-men from the great cities, otherwise intelligent and soft-hearted, seem to find satisfaction in potting blackbirds and even sparrows, for the sole purpose of exhibiting their marksmanship. I have known them to descend five miles of a river and shoot at every bird seen with their 22-calibre rifles, fortunately with little effect. They are on a well-earned holiday and the spirit of don't-care possesses them. Such people can only be remonstrated with, or, better still, treated with ridicule and contempt. The more reasonable among them may be led into better paths by interesting them in some one of the many societies for the protection of the natural world, a good word for which I wish to speak here, for I consider it the duty of every citizen who can possibly afford it to contribute in this manner to the marvellous work these organisations are doing. Among them the one that appeals to the greatest number is "The National Association of

Audubon Societies for the Protection of Wild Birds and Animals," a league the length of whose name properly typifies the really gigantic work for good it has and must continue to do. I have no space here to enumerate the stock arguments even of the bird-protectors alone, but two things are admitted even by the ignorant: that, unless birds are protected, they will soon be exterminated, and that, should this happen, not only would our fields and woods be robbed of their most beautiful ornaments and music, but it would represent a loss of uncounted millions of dollars, for people are but just beginning to appreciate the work of the birds in keeping down insect-life that is the agriculturist's great enemy. Join the Audubon Society, I say, and contribute to a great national economical movement, and to the continuance of the grandest and sweetest series of symphony concerts to be heard under the canopy of Heaven, and free concerts at that![1]

Another national organisation of vast importance is the "American Forestry Association" (address: Washington, D. C.), which has for its object the rescue of our magnificent forests, and consequently of the game harboured by them, from the lumber grabbers and robbers, who will, unless checked, soon denude our country of these priceless treasures, that can never be regained if once lost. Only future generations will fully appreciate the efforts of President Roosevelt and others in the establishment of national parks and the protection of our woods.

There are many other praiseworthy leagues and

[1] Write for information to William Dutcher, 141 Broadway, New York City.

clubs of minor scope, and local game societies are to be found in many counties as well as States.

But let not your efforts to protect game be confined to membership in some of these organisations. That would be too much like the Christianity of the average city man to-day, a liberal offering of cash being held all-sufficient for the soul's solace. See to it that no blackbird, no beautiful and interesting Canada jay (moose-bird), nor any other living thing falls to your gun that you do not wish to use either to eat or to mount. But eating and mounting are no excuse for killing legally protected birds and animals. Every camper who carries a gun or rifle should possess a copy of the game-laws of the State or province where he camps. Such can be had of the secretaries of the different game-societies, or an excellent and authoritative résumé of all American and Canadian game-laws may be had in the shape of a copy of *Game Laws in Brief*, published by *Forest and Stream* (twenty-five cents). There are many creatures recognised as noxious to mankind that may be killed with impunity and a good conscience, but let your law be to kill nothing unless you are quite sure that it is on this black-list. The best rule is to read and digest some good natural history manual, such as Hornaday's *American Natural History*, which is written in a popular style, but is authoritative none the less. Chapman's *Birds of Eastern North America* is a fund of interesting and useful knowledge and should be in every summer camp where any books are kept. Among the creatures on the north woods black-list may be mentioned among birds the owls, the Cooper's and sharp-shinned hawks, the goshawk, the loon, the English sparrow; among animals mice, rats,

mink, weasels, bears, foxes, wildcats, Canada lynxes, skunks, raccoons, woodchucks, and porcupines. But it must be remembered that our hostility to these animals, or most of them, applies only to the wooded districts, for in a strictly farming country no hawks, owls, weasels, or other mice-destroying creatures should be hurt, in spite of their occasional raids on the hennery, for the good they do to the agriculturist very far out-values the loss of a few chickens. In a game country, however, where there are few or no farmers to benefit, these creatures destroy a great number of game-birds and animals, and should be made war on. But, again, the fur-bearers among them may not, according to law, be killed in summer, and their fur would be useless then anyhow. As to porcupines, a long residence in the woods has convinced me, in spite of many sentimental friends, that they should be killed on sight. No one who has seen the result of their ravages among trees in Maine, New Brunswick, or Nova Scotia can fail to sympathise with the woodsman's hostility to these otherwise harmless and droll beasts. The fact that their livers are among the delicacies of the woods may serve to console our soft-hearted friends for "porky's" death. In very remote, almost inaccessible regions it is supposed to be right to spare porcupines, on account of the possible food they would furnish starving men; but it will tax our memories to recollect many such instances, if any, for porcupines do not live in a country where one would be likely to starve unless it be in midwinter.

The growing interest in photography is having a most wholesome effect on our attitude towards

nature, and cannot be too warmly encouraged. It would be better, at least for spring and summer trips, to leave all "shooting-irons" at home, unless the members of the party have attained to such a high degree of sportsmanship that they can and will curb all inclination to shoot at creatures that should not be harmed. The .22-calibre rifle in a camp is a source of never-ending amusement, but its use should be almost entirely confined to the target.

The camper should also be filled with a wholesome respect for his forest-home. Often this is not the case. The woods are all round us; we may take what we will for the asking; and in consequence we cut and slash with no regard for economy or decency. Once more: after us the deluge! Fully to appreciate the rich blessings of freedom to cut as much wood as we need, all campers should experience an outing in Great Britain, or, better still, in Germany, where one camps (in the latter country at least) under the grudging eye of a rural policeman or forester, and with his hand, so to speak, on one's collar. Cut so much as a twig and—but the consequences are too harrowing! Verily it is good to live in the north woods and breathe its freedom from restraint, care, worry, and Mrs. Grundy. Let us discipline ourselves; overeating of freedom is followed by a very bad moral indigestion. "The master,' said Goethe, "shows himself within limits."

Let us all do our best to aid such men as President Roosevelt, Mr. Cleveland, Mr. Hallock, Mr. Samuels, Mr. Caspar Whitney, Mr. Hornaday, and others, together with our sporting editors and the hard-working officials of the Federal and State governments (and our Canadian brothers, too), to save for posterity our forests and our fauna.

PART II

CHAPTER XII

FISHING

THE game fish of the northern woods include the *Salmonidæ*, the basses, and the *Esocidæ*. In the salmon family the trout easily holds first place, if only for the reason that its pursuit occupies the majority of wilderness anglers, the magnificent sport of salmon fishing being confined to a fortunate few, on account of the expense entailed. The bronze-armoured bass, though a harder fighter for its inches than the trout, is found more in settled districts and is less a denizen of forest waters. Among the *Esocidæ* are the mascalonge, the pike, and the pickerel, all of them, like the bass, not so much wilderness fish as the trout.

Of the trouts of the north woods the brook trout (*Salvelinus fontinalis*) is the commonest and most important. Next comes the great lake trout or togue (*Cristivomer namaycush*), which is not generally taken with the fly. Other less common fish are the oquassa or blue-back trout of Maine, the Sunapee Lake trout (*Salvelinus alpinus aureolus*), and several species of the far north. More important than these last are soon likely to be the European brown trout (*Salmo fario*) and the rainbow trout (*Salmo irideus*) from the Pacific slope, both being large and gamey fish capable of thriving in waters

warmer than those required by the more beautiful and livelier brook trout, so that, as the pulp-mills increase and the lumbermen gradually but surely denude the earth of forests, we shall in time have to be satisfied with these importations. Let us be duly thankful, even while we weep at the fate of our *fontinalis*, that the substitutes are so good.

FISHING TACKLE

The degree of completeness of a fisherman's equipment depends upon his love of the art and the time he is able to bestow on it. One who spends a fortnight at a mountain hotel and takes along a rod with a view to visiting occasionally a possible near-by brook will be satisfied with the simplest outfit, though the rule should always obtain that the simpler the equipment the better must be its quality, since there is no reserve tackle to fall back upon. The genuine angler, who goes far and stays long, and takes a keen interest in every phase of his art, will not be satisfied with less than three, or at least two rods, several reels, and a generous supply of other tackle, to fit all conditions and to be fortified against accident.

This is the age of specialisation, and whereas in the "good old days" many a fisherman was content to use one rod for both trout and bass, fly or bait, on mountain brook or lordly stream, nowadays the expert selects his rod for the particular fish and waters to be fished with as much care as a society belle bestows upon her toilette for this or that social function. The result is that, strictly speaking, the ideal "all-round rod," so much sought after by

beginners, is not to be found. Since modern rods are very light and easy to transport, it is better to have two rods, one for fly-fishing and the other for bait or trolling, in case one visits waters where more than one sort of angling is practised. Nevertheless, if the fisherman is not fastidious (here's hoping he will become so!), he may be suited with some one of the several "combination-rods" offered by the dealers. A rather strong, stiffish fly-rod can be made into an excellent all-round rod by the addition of a third somewhat shorter top for bait-fishing and a fourth for trolling. I own one of bethabara (noibwood) which weighs with lancewood fly-top seven ounces. It has two second joints ("double-barrelled") and several varieties of top, and, though not perfect for any style of fishing, it is good for any and all, except, of course, for large salmon.

The well-equipped modern fresh-water angler should however have separate rods, lines, reels, and flies or baits for salmon-fishing, fly-fishing for trout, bass, or grayling, trolling, bait-casting, and, finally, for coarse fish generally, and even these several classes are subdivided into categories, according to the size of the fish sought or the character of the waters.

In any case remember that accidents to fishing-tackle are inevitable and do not go into the woods without spare reels, lines, etc., the quantity depending upon the length of the trip and the opportunities for getting reserve stuff.

TROUT

Fly-Tackle: Rods

American fly-rods are made of split and glued

bamboo, bethabara or noibwood, greenheart, and lancewood. Other materials are used, but have been generally condemned by expert anglers as too heavy or stiff. As for a steel rod, I have yet to meet the good fly-fisherman who would accept one as a gift, though they are used for bass. Four fifths of all fly-rods now used are constructed of split bamboo, which may be recommended as the best material, both on account of toughness and resiliency. The split bamboo was first made in the first half of the last century in England, but has been developed by Americans, who boast supremacy in its manufacture. Of late, however, the best British firms, such as Hardy and Malloch, claim full equality. If a British rod is bought do not allow that monstrosity, the steel core, to be included, nor patent lock-joints.

Material

The well-established rule is to buy nothing cheap, especially in split bamboo. An excellent bamboo rod can be had for $15.00 and a fair one for $10.00, though I would not recommend the latter. Exceptions aside, it is better to take greenheart or lancewood in the cheaper grades. Greenheart is less used in America than in England though a tougher and better wood. The best lancewoods and greenhearts cost $4.00 to $8.00. Of course if you can afford it buy the best rod in the market and pay $25.00 or $30.00 for it. If, however, you are a beginner choose at first rather a cheaper rod, for you are likely to abuse it before attaining to proficiency. A poor rod is good enough to smash and is good to learn on, as a fine rod is far easier to handle, so that when one is afterwards purchased the reward will be doubly great.

Cost

Begin then with cheaper goods and purchase better gradually as your improvement warrants.

Anent the question what make of rod to purchase it behooves the adviser to practise strict catholicity. It is obviously quite impossible to prove that the wares of one first-class manufacturer outclass those of another, although in this connection the catalogue claims of the several firms afford very amusing reading. "We guarantee these rods to be the best . . . made, except only our Eight-Strip, etc.," says one New York firm, while another's "are infinitely superior to anything in the market exclusive of" another of their own make. A third firm says, "Our aim was to produce, not as good a rod as others, but the *best*. This we have accomplished, etc." And this bombastic boasting comes, not from charlatans, but the three supposedly best fishing-tackle firms in the metropolis! Their claims serve to offset each other and leave the perplexed purchaser in the same plight as before. As a matter of fact they are all good. By the time that the novice has become a veteran he will have plenty of ideas himself on the subject of the best make; until then it does n't much matter.

Where to Buy

Among Eastern firms carrying first-class rods and other tackle may be mentioned: in New York: Abercrombie & Fitch, Abbey & Imbrie, W. Mills & Son, Von Lengerke, Detmold & Co., "Abercrombie's," E. Vom Hofe; in Boston: Iver Johnson Co., W. Read & Sons, Dame, Stoddard & Co.; in Amherst. Mass.: Montague City Rod Co.; in Worcester, Mass.: Burtis; in Manchester, Vt.: Chas. F. Orvis; in St. John, N. B.: C. Baillie, and D. Scribner & Co.; in Halifax: A. M. Bell; in Montreal: T. W. Boyd; in Quebec: V. & B. Company. Of course these are by no means the only first-class houses;

in fact nearly every city, especially those near the fishing sections, has at least one good tackle firm. I have personally used rods made (or sold) by the New York and Boston firms mentioned above and all are good.

Choice

It goes without saying, that a complete novice, without the help of a knowing friend, is quite incapable of testing a rod and is therefore in the hands of the dealer. Later, when he again purchases, he will joint the rod in the shop, attach a reel of the proper weight, and whip it through the air a number of times, as if in the act of casting, with a view to testing its balance and action, and ascertaining whether it *feels* right, in other words is the rod for *him*. He should hold it horizontally, look along it from butt to tip, and slowly revolve it; if well-made its slight curve downward will remain exactly constant. If he is very careful he will try a few casts with a line, and he is quite justified in refusing to buy without this full "whipping test," especially in the case of a high-priced rod, for not every good rod fits every man. A good method in choosing a cheaper grade is to ask your dealer to set up one of his best, so that it may be tried alternately with the cheaper rods, in order to select the one nearest to it in action. The inexperienced should always buy a rod from a maker or dealer of reputation.

Length and Weight

The angler in American waters will be likely to do much of his angling in rapid brooks, for which reason he should choose a rod that is a bit stiffish rather than very whippy, especially if he has but one. If the fishing is to be done on small brooks, such as in the Massachusetts Berkshires,

the right thing is a rod from eight and a half to nine feet long and weighing from four to six ounces. It should be rather stiff, as the overgrown banks often prevent the use of a landing-net and therefore make the "derricking out" of the catch imperative. On large streams or lakes the rod may go to ten feet and seven ounces, or, for a strong wrist, ten and a half feet and seven and a half ounces. A very fine rod is a split bamboo nine or nine and a half feet long and from four to five ounces in weight, but such light rods should be of the best workmanship and are therefore expensive. A trout rod over ten and a half feet is practically never seen now on this side of the ocean, and this is long enough in all conscience. After all an ounce more or less in a rod is not nearly so important as the balance. A well-balanced rod that fits the hand is far less tiring than a poorly balanced one a couple of ounces lighter. Any additional weight should, however, lie under or behind the hand.

Joints

Nearly all American rods are made in three pieces: the butt, second joint, and top,[1] an extra top always being furnished with every rod. One need not concern oneself about the style of ferrule used in joining the parts, whether plain insertion, dowel, or some patent "lock-joint." In a good American rod every joint will be strong and fast; at least in all my experience I have never found

[1] In order to prevent confusion I choose here and elsewhere the proper designation for the upper joint of a rod, as the American innovation, "tip," is, correctly speaking, the metal or agate ring through which the line passes as it leaves the rod, and not the whole upper joint.

one that was at all loose, and can therefore see no advantage in adding unnecessary weight in the form of some extra lock or grip. It throws an unfavourable light upon the quality of British ferrules that these devices are at home only on the other side of the water. The simple joint is preferable to the dowel, as the latter must increase the stiffness of the rod by lengthening the joint, the ideal rod being in one piece (spliced) with an equal bend from butt-cap to tip, like the Castle Connell rods of Ireland. One-piece rods are, however, so difficult to transport that they are seldom made in this country. Welted ferrules are generally furnished with good rods.

Nearly all ferrules are made of highly polished metal, so that they tend to frighten the fish; therefore have them oxidised or otherwise dulled.

Guides

Guides, through which the line passes from reel to tip, are made in several styles, all rods of cheap or medium grade being furnished with rings of white metal whipped to the rod with silk by means of "keepers." More expensive rods generally have some kind of standing guides, the so-called "snake guide" being the favourite, made of steel or German silver. The problem is to reduce to a minimum the friction of the line against the guides, to facilitate casting. For this purpose guides are often made of very smooth substances, such as composition "adamant" and the much more expensive agate, the latter, almost frictionless, being the best. These substances, however, increase the weight of the rod, and hence, except occasionally nearest the reel, they are seldom used on fly-rods. It is of decided advantage to have an adamant or agate guide next the

reel, as the line forms a considerable angle with the guide at this point, thus increasing the friction. On very light fly-rods they are not used.

Tips

Fly-tips are generally made of white metal rings, but one of adamant, or, better still, agate, is to be recommended, since the greatest amount of friction is generated here. In casting the use of agate tips and first guides makes a very noticeable difference, while they save much wear on the line. In buying metal ring tips get the very best, as the cheaper grades wear out the line grievously.

Wrapping

The wrappings on rods are of the finest and strongest silk, and are whipped on the rod, if it be a high-class bamboo, at intervals of not over an inch, the object being strength, since the six or eight strips of which bamboo rods are composed are otherwise held together only by glue. It is the unfortunate custom of makers to deck out their rods with several different-coloured silks of the gaudiest tints, which, added to the varnished brightness of the average bamboo, completes a rod which scintillates in the sun like a heliograph, and is apt to frighten all the trout in a pool into fits. Greenheart and bethabara rods have the advantage of being wrapped in silk of soberer colours, a benefit too often neutralised by the use of polished metals, such as German silver and nickel, for ferrules and reel-mountings, which should be oxidised (see *Repairing*).

Nearly every maker has some patent method of fastening the reel to the rod, nearly all being efficient,

though some admit the use of certain kinds of reels only. The simplest are likely to be the lightest and best. Very light rods are often equipped with merely a socket for one end of the reel cross-piece and a sliding ring to go over the other, the natural wood of the rod being left without reel-seat. Reel-seats are generally of metal, though hard rubber is lighter and quite strong enough.

Reel-seat

The butt of the rod is covered with the butt-cap, which in this country is generally made of thin metal, so thin in fact that it easily dents, or, in the case of a fall by its owner, is even smashed to pieces. A rod, is, to be sure, not meant to be used as a staff, but there are many times, as when balancing on the slippery rocks of northern streams, when it is involuntarily so used to avoid a nasty fall. In such cases the rubber button which the British screw to the butts of their rods seems an excellent thing, being inexpensive and easily replaced. For light rods they would be unnecessary.

Butt-cap

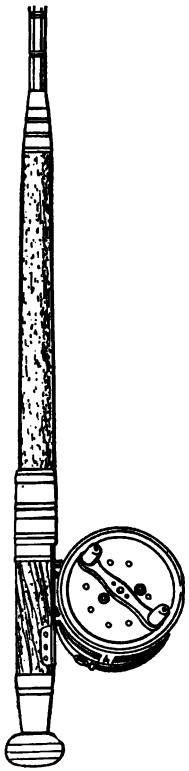

FIG. 29. — British Handle with Butt-Button

Trout-rod handles are made of many materials, such as cork, wood, snake-skin, cork or wood wound with cane or with twine, hard rubber, and several kinds of composition. Of all

Handle

these the "solid cork" handle is considered the most satisfactory, especially for lighter rods, as it is very light and offers a good grip. It is made of a number of graded disks of cork fitted together round the rod, which passes through holes in their centres. Another sort of cork handle, used only in cheap rods, is made of thin sheets of cork glued over swelled wooden handles. These latter, called simply "cork handles" in the catalogues, are very flimsy. The real cork handle is always called "solid" in American catalogues. If your rod is equipped with a cheap sheet-cork handle have it wound with thin twine, or do it yourself, and you will have an excellent handle. Hard rubber, celluloid, and most polished woods are too slippery for this purpose; snake-skin affords a good grip but wears poorly. The gently swelled handle is pretty universal for single-handed rods, but "shaped" handles, swelled at each end as well as in the middle, are sometimes made, especially in England.

FIG. 30 Swelled Handle

FIG. 31.—Shaped Handle

Independent Handle

This is a short handle into which the whole of the rest of the rod fits. Its principal advantages are best described by Mr. H. P. Wells in *Fly-Rods and Fly-Tackle:*

"Use a handle with a ferrule immediately above it—or, better still, sunk into it—to receive the butt joint, the whole so arranged that while the handle remains still, the butt joint can be turned readily, so as to present the rings either beneath or on top of the rod. One handle will thus do for all single-handed fly-rods, heavy or light. You can cast with the rings underneath or above, while the reel always remains in its normal and only convenient position—that below the hand and under the handle—and you can change from one to the other as your fancy dictates. Also in ordering or making a new rod, you will not only save the expense of a new handle and its furniture, but avoid the temptation to use strong language when you find your old reels will not fit. Again, your rod, even if of inferior material, will always remain straight and uniform in action."

Of course the butt joint is turned only half-way round when the rings are to be used on top, so that the line will extend, not completely round the butt, but only half-way in a long curve, and in this position it will render freely.

This idea of the independent handle is an excellent one, but, so far as I know, it is not made by any manufacturer as a stock article, or, at any rate, not advertised. If any amateur wishes to start a collection of rods with one universal independent handle he can do no better than to ask his maker to proceed on the lines laid down by Mr. Wells on page 247 *et seq.* of his book.

Trunk-rods

Trunk-rods are made in from four to six or seven joints short enough to be carried in an ordinary trunk. Although convenient for transportation they are, except the most expensive, of poor action and not to be recommended.

American rods are usually sold with a light plush or cloth-covered wooden form, made with grooves

into which the several joints fit, the form being kept in a canvas bag. For extensive travelling and for storage purposes round leather and fibre cases are made in several qualities to hold from one to half a dozen rods, the strongest being of sole leather and costing from $10.00 to $15.00. Cheaper cases of fortified canvas may be had for $1.00 and are excellent for canoe trips. Another kind of case, particularly suitable for transportation, is simply a long, narrow wooden box with straps, lock, and handles.

Cases

The worthy angler looks after his rods with the same assiduity as the cavalryman does his horse, and he reaps his just reward, for, with care, a poor rod will last longer and keep in better condition than one of high price which is maltreated.

Care of Rods

See that form and case are prefectly dry and clean before putting away the rod, having previously wiped the rod dry, handle, ferrules, and all. See that no foreign substances remain in the ferrules. If the rod is not kept in an inflexible form do not tie string or tape round the middle of the case or bag, and be sure to store standing vertically, or, if horizontally, so that it rests equally upon its entire length. If set away without unjointing see that it stands vertically as nearly as possible, or, if laid horizontally upon pegs, have enough of them to prevent any strain on any part of the rod. The best way to put away a jointed rod is to hang it up by the tip. Rods should not be left long in too low an atmosphere. Before jointing see that the ferrules are quite clean. Mr. Wells recommends that they be greased, but I greatly prefer a smoother lubricant,

the best I know being Dixon's graphitoleo, which comes conveniently in small tubes. If the ferrules stick obstinately when unjointing do not adopt such radical measures as jerking impatiently; ask a friend to hold one joint while you pull on the other, but be careful to twist the rod only very slightly or the ferrules will be weakened. Do not indulge in a regular tug-of-war if the joints refuse to part, but heat the ferrule by holding a coal or a match near it, being careful not to burn the wood. The best cure for sticking is the use of graphitoleo before jointing. If no other lubricant is handy rub the male ferrule against your perspiring nose, or rub with a lead pencil. If lubrication fails to cure the sticking malady recourse must be had to the finest emery-dust, with which the male ferrule is rubbed, but great care must be taken, as emery pares down German silver with great rapidity and a few seconds' overrubbing will spoil the ferrule.

The moment a real mechanical defect appears, such as a loosened ferrule or tip or a frayed wrapping, repair it at once. Never use your rod if minus even one guide, or it is likely to be badly strained. (See below under *Repairing*.)

To *joint a rod*, fit the top to the second joint, being careful to bring the guides in exact line. (Each pair of ferrules is provided with indented dots which must be brought immediately opposite each other.) Then fit the two jointed parts to the butt. Be sure that the ferrules are inserted to their full length. The reel is then fitted to the reel-seat and the line drawn through the guides. It sometimes happens that a rod must be jointed in a canoe or boat, in which case the reel may be affixed first and the line drawn through the guides

before jointing, pulling off enough line for the parts to be laid beside one another unjointed. Care must be taken when jointing that the line does not foul nor take a false twist round the rod. If you find that even the slightest mistake has been made in setting up, do not use the rod in that condition but rectify the mistake at once.

To *unjoint*, untie the leader, withdraw the line, and unjoint first at the butt. If the rod is to be used again shortly with the same tackle the line may be left in the guides and wound loosely round the unjointed parts.

Never put a rod away wet, or any tackle for that matter. Never leave it out all night leaning against the tent, as many anglers do. The moisture will before long hurt the varnish and certainly the reel and line. Do not fish continuously with the reel under (or over) the rod, but reverse the rod every little while and use it in that position, in order to equalise the strain, as otherwise even the best rod will likely be "set" to one side. At the end of the season straighten and varnish your rod or have it done by your dealer, renewing all frayed wrappings and testing for looseness and cracks. (See *Repairing*.)

Reels

For fly-fishing the perfect reel should be:

Qualities of a Good Reel

1. Single-action, *i.e.*, in the form of a simple winch, and not a so-called "multiplier," or, worse yet, an automatic, both these being unnecessary and unsportsmanlike.

2. It should hold thirty or thirty-five yards of No. E enamelled silk line; for, though most fishermen are unable to cast well more than twenty yards and are

very seldom called upon to use much more, it is well to have a certain reserve of line on the reel in case of accident or wearing, and the fuller the reel the larger the spool on which the line is wound, and therefore the faster to wind.

3. It should be oxidised, or of some dull material (bronze, rubber) that will not reflect the light and frighten the fish.

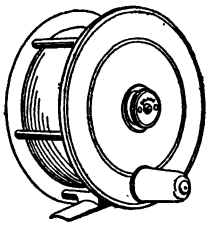

FIG. 32.—British Reel

4. It should have a *protected handle*, *i.e.*, one that does not project more than ¾ inch out from the side of the reel and consists of a single simple wooden nib revolving on a metal shaft and tapers slightly towards its outer end, so that, if the line is caught by the nib, as often happens, it will slip off automatically.

(It will be seen that this condemns all so-called "balance handle" reels, the handles of which protrude to such an extent that the line is constantly being fouled in them, an annoying state of things by no means helped by the double ends.)

5. The edges of the reel which come in contact with the line as it is pulled or reeled off should be so rounded that they will not wear the line. Most cheap reels offend against this rule. The mischief is not done in reeling in, but in pulling off extra line for a longer cast with the free hand, this being done for the most part over the sides of the reel.

6. The reel should be of the right weight to balance the rod, and this can be ascertained only by experiment. It is generally true that the lighter the tackle the better, but this does not mean, for example,

that an aluminum reel will properly balance every rod; on the contrary it is sure to be too light for anything over 4 or 4½ ounces.

If the above rules be sound, and I believe that the great majority of expert fly-fishermen will so regard them, it is apparent that most so-called trout reels cannot be recommended for fly-fishing. The multiplying system and the balance handle are, with the exception of the abominable automatic reels, most to blame, and no amount of bejewelling and expert workmanship can save them in the eyes of the true sportsman. They lighten the work of the angler, retrieving his line for him at a double or quadruple pace, so that the fish, already at sufficient disadvantage, has little chance for its life; and in cases when even an expert gets into trouble, such as when the fish takes refuge in weeds or bolts down a rapid, they are of no help at all.

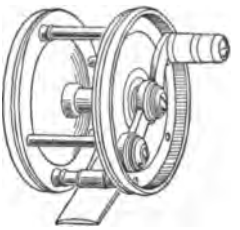

FIG. 33.—American Trout Reel with Protected Handle

The British manufacture only single-action reels. The Hardy Brothers' "Perfect" and "Bouglè" reels are all that an angler could desire, and the same may be said for the Malloch (Perth) gun-metal reels and especially the "Sun and Planet" ($4.00 to $6.00).

At home we have some excellent fly-reels, among them the B. F. Meek single-action trout-reel ($15.00). This is made of German silver, but the Messrs. Meek assure me that they will cheerfully oxidise their reels when desired. The Talbot "Ben Hur" reel ($10.00) may be recommended, as I take for

granted it can be had oxidised as well as in bright nickel. The common single-action hard rubber reels are many of them good, $3.50 being the medium price. Among very cheap reels may be mentioned the Abbey & Imbrie "Revolving Disc" ($1.50), and especially the Meisselbach "Expert" and "Feather-weight" reels, as they possess the great advantages of simple construction and generous spool, enabling one to wind in the line very fast. They can always be had oxidised. Beyond their rather crude construction (compared with high-priced wares), their only weaknesses are their sharp edges and the fact that tapered lines cannot well be used in them, as the thin ends are apt to catch in the rims. They are in other respects ideal low-priced reels. The forty-yard "Expert" costs $1.60 and is heavy enough to balance a five- to seven-ounce rod. The "Feather-weight" costs the same and is for a very light rod; in fact it is so lightly made as to be somewhat easily broken. The ease with which the Meisselbach reels can be taken apart and cleaned is a great advantage. The Orvis reel ($2.50), if oxidised, is a fine article.

FIG. 34.—The "Expert" Reel.

As a parting advice on this subject, never go into the woods without a spare reel.

Care

Use only the very best oil in good reels and that very sparingly, in order not to clog the mechanism. Every good reel should be

kept in a leather case, or at least a stout bag, to keep the dust out.

Lines

The requisites of the perfect fly-line are strength, durability, smoothness, and extreme flexibility, and these are found in the best modern "enamelled silk" waterproof line, though only in the best qualities, costing, for twenty-five yards of size E level, from $1.25 to $2.00. They are made of the finest braided silk, waterproofed in a vacuum, so that the waterproofing will penetrate to the core and thus prevent rotting, even when the enamel, which envelops and glosses the line, is broken. **Cost**

Any neutral colour is good, the favourite being a mixture of green and black.

For trout-fishing in swift running water level lines are used, *i.e.*, such as are of the same thickness throughout. Size E is generally preferred for rods weighing over 4½ ounces, as its weight enables it to be easily cast, especially in a wind. F may be used with rods not powerful enough for E. The important point is that the line shall run out to the rod's (and the angler's) casting capacity with ease. For delicate fishing in waters where the current is not too strong tapered lines are far the best. These taper off towards the end in diameter, and possess the great advantage that the light end (next the leader) does not slap the water as a heavy line is too apt to do, especially after a long cast, but falls gently and thus allows the fly to settle softly over the fish. This lightness of placing the fly is far more important than length of cast in quiet waters, **Level or Tapered**

especially on a bright day. The best all-round tapered fly-line is of the size E in the middle and tapers to F and even G at the ends. The double taper enables the line to be used from either end.

Cheap Lines

Oiled silk lines, not enamelled, are much cheaper ($.50 to $.75 for twenty-five yards), and do excellent work, though, being lighter, they are harder to cast from a trout-reel, and are much more apt to foul and snarl.

Testing

When buying a line see that the coils do not stick together to any extent, for, though the soft enamelling is more flexible, stickiness will counteract this advantage. Double the end of the line between the finger and thumb and give the loop thus formed a roll. If the spot shows a whitish mark the enamel is too brittle and of bad quality.

Every line, new or old, should be subjected, at the beginning of each season, to a tension of at least twelve pounds (some say sixteen pounds). The best lines when new will stand far more than that. A test in time saves many a disappointment. Soft-enamel lines can be advantageously rubbed down with deer-fat to keep them pliable and smooth; graphitoleo will do also, though the overnice fisherman might soil his hands with it.[1]

[1] Never allow a good line to remain any length of time wet on the reel, but remove it and wipe dry. There are several good drying-reels for this purpose on the market ("Angler's Friend," $2; "Nichols," $1). The back of a chair may also be used.

Leaders

The gut from which all leaders (casting-lines) are made is produced in the province of Murcia in Spain from the fluid of the silk-worm, which is drawn from the worm and hardens upon exposure to the air. The strands, which are between 10 and 18 inches long (the most expensive up to 24), are sorted according to size and again according to quality. Fishermen should have to do only with good gut, and this is known by its hard, smooth, colourless quality, and its absolute roundness. Rolling it between the fingers will reveal any flatness, which means weakness.

Gut

Testing for Quality

The finest (in diameter) natural gut is called "Refina", and is used for the most delicate trout-casts ($\frac{7}{1000}$ to $\frac{9}{1000}$ inch thick). Then follow "Fina," "Regular," "Padron" second and first, "Marana" second and first, "Imperial," and "Royal," which last is the very thickest salmon gut, produced only in small quantities, and consequently very expensive. Natural gut is called *undrawn* to distinguish it from "drawn gut," which is produced in several sizes by drawing, or paring down, the natural gut between diamond plates to great fineness. Drawn gut is mostly used by British "dry-fly" anglers (see *Trout-Fishing*), whose tackle, except the rod, is of extreme delicacy. It is much weaker than natural gut and is only recommended for use in quiet water where there is plenty of room to humour the fish.

Drawn Gut

(Reckoning probably on the general ignorance of the average American angler, most of our dealers have adopted

a nomenclature for the sizes of gut which is quite senseless, since the term "trout-size," for example, may mean one thing to one fisherman and something much heavier to another. There is no advantage and much resulting confusion in abandoning the terms by which the different sizes are known in the British market, to which ninety per cent of all gut goes and where the American dealers buy theirs.)

Strength

The reason that the British are addicted to much more delicate leaders than we lies in the comparative serenity of their waters, where they do not have to fight both the fish and the rapids as is often the case with us. Nevertheless Americans generally use too heavy gut for trout, in most cases strong enough to hold a salmon. On brawling streams, especially when swollen in early spring, a strong leader is a necessity, but one of "Regular" gut with "Padron" upper half will hold the biggest trout that swims, provided it be of good quality. For my own part I confess to a leaning towards very light leaders ("Fina" and "Refina"), the object being to give the fish all the chance possible. (This gut I have nearly always been obliged to get directly from England, as our dealers do not commonly keep it in stock.) The British make the mistake of using too heavy rods with delicate tackle. Why should we go to the opposite extreme and attach salmon leaders to lines thrown by light rods? Mr. Wells says (*Fly-Rods and Fly-Tackle*):

"The strain imposed upon a leader, even by the largest trout, is generally greatly overestimated. A leader that will endure five pounds steady strain with a spring-balance will, when backed by the elasticity of a fair rod, resist the utmost effort of the largest trout that swims the Rangeley Lakes."

In any case buy the lightest trout-leaders your dealer keeps.

Length

For stream work the leader should be six to seven feet long. For fishing open, quiet water it may be nine feet, except with a short rod, for the leader should in no case be longer than the rod, or the knot at the junction of line and leader will for ever be getting caught in the tip-ring, to the vexation of the angler. Nor, with too long a leader, will you be able to get your fish near enough to net, for the bend of the rod enables the victim to keep at a greater distance. It follows that a nine-foot rod should not be used with a leader more than seven feet long.

Colour

Innumerable experiments have been made with a view to ascertaining what colour of gut is the least conspicuous to the eye of a fish, and the discussion goes merrily on. Nowadays most ready-made leaders are stained a "mist," or pale grey, colour as being neutral, and this is perhaps as good as anything; but, while it behooves the modest man to keep an open mind on such subjects, I confess that I have lately come to the conclusion that it is best to leave the gut in its natural colourless state, for the reason that, once in the water, it takes on and reflects the colouring of the surrounding element; in other words it is apt to become practically a part of the water in tint, while stained gut remains constant to itself and hence is more conspicuous. Neither does staining improve the quality of the gut. Leaders in several tints may be had of dealers. Of course if one fishes waters that are habitually slightly

coloured, such, for example, as those of southern Nova Scotia, the leader may be tinted to match; in this case a pale yellow by soaking in strong coffee.

Loops

Unless specially ordered, most American leaders, if nine feet long, are furnished, at certain points between the two ends, with two loops to which a second and a third fly may be knotted, the general run of fishermen, especially the non-expert class, using three flies together, a habit reprehensible in many eyes, since it approaches the use of the drag-net. And it may be said that, though many excellent anglers habitually use two flies, the "simon-pure" sportsman, who has risen from the lower forms of the fish-hog through the slightly higher class of creel-fillers and record-boasters, finally to become an alumnus of the "College of Pure Angling," uses one fly only and hence has no desire for loops on his leaders. However let us not be Pharisaical, but close an eye to the use of one dropper-fly, if only for the pleasure (perhaps after a surfeit of fishing) of hooking and landing a pair at one cast, an experience which has its exciting and legitimate joys. The loop for the dropper should be placed at least thirty inches (better three feet) from the tail-fly (stretcher-fly) loop. If you will persist in using three flies—but no, let us not contemplate even the possibility of this!

To the stout end of the leader is tied a small loop for attaching the line, and, if, as usual here, flies tied on gut are used, a larger loop is provided at the finer end for attaching the fly-loops. If small-eyed flies (without gut) are used the leader end is left without a loop, the fly being attached by some kind

of knot. (See under *Flies.*) One practical way to make up tapered leaders is to buy a number of two and three-foot leaders of different thicknesses and loops at each end, and loop them together as desired.

Holding the leader-loop between the thumb and forefinger of the left hand, pass the end of the line up through the loop for an inch and a half, cross it over itself with the end pointed from you, and then press the middle of the free end round under and up through itself, forming a knot which is now drawn tight by holding with the left fingers and pulling the line with the right hand. This is the usual and a very good method. (See Figure 35.)

Attaching Leader

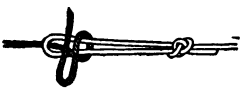

FIG. 35.—Angler's Knot

Another way: Pass the end of the line through the loop, then round it, and finally under itself. Haul tight. In this case a knot in the end of the line ensures added security. (See Figure 36.)

FIG. 36.—Another Leader Knot.

In all cases the smaller the knot the neater and better.

Leaders are kept coiled in boxes of metal, either round or rounded oblong in shape, costing from $.25 to $1.00. They contain two or more sheets of felt between which, moistened, the leaders lie. For storing purposes the boxes should be of some strong material, but to carry a few extra leaders in the pocket the little $.25 aluminum box

Leader-boxes

is just the thing. When likely to be used the felt should be kept well moistened, to soften the gut and render it perfectly flexible, as insufficiently moistened gut is very easily injured, with the result that it frays or cracks and then breaks with a moderate pull. Moistening gut does not render it stronger, on the contrary its tensile strength is weakened by some twenty per cent. by the process, but it does make it pliable and less liable to injury. Always examine a leader closely before using, and exchange it for another if the slightest fraying or cracking is discovered. A weak strand can be replaced at leisure by a fresh one.

How to Make

Fishermen are for several reasons recommended to make their own leaders, an easy and amusing task after a little practice. Especially is it profitable for those who do not care to be bound by the stereotyped patterns offered by the dealers. One can make any style and length to suit one's taste. Gut, stained or unstained, can be had from the dealers in the hank of one hundred strands. Consult the catalogues of Abbey & Imbrie and Abercrombie & Fitch of New York (the former firm preserves the original names of the several sizes). Canadians can import directly from Hardy Brothers, Alnwick, England, and save a portion of the cost.

Carefully select the strands for each leader according to thickness and length, having decided upon the length and style. The leader should taper gently from thick to thin end, a fact to be kept in mind while choosing the strands, which are coiled loosely together and put to soak overnight in tepid soft water (distilled is best), which will render them

soft and pliable. A couple of hours in warm, not hot, water will often be enough but overnight is better, as the strands will then be softer and the knots will prove closer and stronger. Begin by doubling back on itself the thick end of the heaviest strand far enough to tie a very small loop (common knot). It need only be large enough to allow the line to pass through. Draw as taut as possible by inserting a lead-pencil and pulling steadily on the strand and the loose end, which need not be trimmed off until the complete leader has been tied. Next tie a single loose knot in the other end of the strand, only about $\frac{1}{8}$ of an inch in diameter and as near the end as the quality of the gut will warrant, being careful not to include any part that is flat or otherwise imperfect. Take the second thickest strand, thrust its thicker end through the loose knot just tied, and tie with this end a second knot round the top strand. The two strands will then appear like this:

Single Water-knot

Draw the two loops pretty tight and then pull them together by drawing on the two long ends, so that they form one compact knot, called the "single water-knot." When joined pull steadily and strongly on the strands and the two untrimmed ends until the knot seems perfect. This process is repeated with each new strand until the leader has attained its destined length, when all projecting ends are trimmed off with the scissors as closely as possible to the knots. For snelled flies a loop, large enough for the fly to pass through, is tied at the end of the thinnest

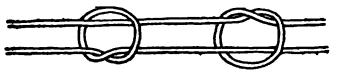

FIG. 37.—Detail of Single Water-Knot

strand. For eyed flies the end is left without a loop.

Instead of the single knot many prefer the "double water-knot," especially for thin gut, which pulls out more easily. It is made like the single knot, except that the short end is passed twice round the other long part instead of once, and then through both loops thus formed. Mr. Wells recommended the single knot for ordinary gut, and I can testify from long experience that, if the gut is well soaked and closely tied, it is quite satisfactory. For drawn gut the double knot is preferable, as it is stronger and the bulk is not much increased.

Double Water-knot

FIG. 38.—Double Water-Knot

The leader we have just made contains no loop for a dropper-fly, which may be attached in two ways.

Dropper-loop

1. Having determined at which knot the dropper shall be placed, we do not make a water-knot as above at this place, but tie in each end a simple loop and then join as in the cut. To put on the fly, push the loops apart and insert the snell of the fly (with a knot at its end or its regular loop to prevent slipping through); then pull the loops together again. This enables the angler to change his dropper with ease and celerity. If he wishes to use an eyed fly for a dropper he must attach to it a short snell of gut with a knot in the end. (Fig. 39.)

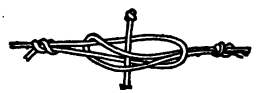

FIG. 39.—Loop-Knot for Dropper-Fly

2. At the place where we wish to place the dropper, and before the water-knot is drawn taut, we insert a short piece of gut with a common knot in one end and a ¾ inch loop in the other. Then draw the water-knot tight. The dropper-loop need not be over an inch or so long, as the fly will be far enough from the leader by reason of its own snell.

Having made our leader we now proceed to test its strength. Soak well. Fasten the thick end to some smooth projection, as a hook, and the other to a pocket balance scales, which are held in the hand and strained steadily until the leader either breaks or the scales register a satisfactory strength. If the leader stands the test do not repeat it, as the gut is weakened by the process. A five-pound strain is enough to test any trout-leader, for a trout pulls very little over its own weight in smooth water, and in rapids he must be humoured to some extent. For very light leaders a strain of 2½ pounds is sufficient. If the leader breaks before it should, repair and retest. When satisfactory coil loosely and put away with a label pasted round it, containing a record of the strain it can bear.

Testing

(To attach flies to leaders, see under *Flies*.)

Though not an advocate of coloured leaders, I append the following hints for those who are. All boiling is best done in earthenware pots.

To Dye

Neutral Grey: Boil for five minutes or so a drachm of ground logwood and six grains of powdered copperas. Remove from fire and immerse the gut for two or three minutes, fishing it out every minute to see whether sufficiently dark.

When the required shade is obtained wash in cold water. (Chitty-Norris-Wells.)

Grey: Immerse in pure black ink and cold water, half and half, until the right shade is obtained. Ink corrodes gut least.

Green: "Boil green baize in water, and when this is well charged with colour, and still warm, immerse the gut therein until sufficiently dyed." (F. Francis.)

Yellow: See above under *Colour.*

Flies

Artificial flies are generally supposed to be more or less accurate imitations of natural winged insects, for which they are taken by game fish; and this is no doubt true of some waters and of some flies, particularly in regions which have been fished for many years, where the kinds of food are few, and where the trout have become "educated," as in England and some parts of this continent. Here the flies are made to imitate the natural flies on the water as closely as possible, as, for example, those most used in Pennsylvania and southern New York, and in a still greater degree on the clear chalk streams of England, where the brown trout (*salmo fario*) is lured with the daintiest of flies made to imitate both sexes of the insects common to those waters, for on the other side of the water a knowledge of angling entomology is as common as our general dense ignorance on the same subject, not one American angler in fifty being able to name correctly a single living fly found on trout waters; in fact it is doubtful whether there are fifty in the whole country who can do it, exception being made of one or two of the commonest kinds. The result is that there are no artificial flies tied in this country that can rival British "dry-flies" in workman-

ship. One reason for this is the ignorance just mentioned and the consequent lack of demand, but a still more important one lies in the fact that our beautiful brook-trout (*salvelinus fontinalis*) refuses as a very general rule to take any lure which floats as if dead on the surface of the water (May-flies are about the only exception). The artificial fly must therefore be kept in motion, and its workmanship is of less importance, since its details cannot be so distinctly seen by the fish as if it floated motionless.

Volumes have been written on the question, "For what do trout take the artificial fly?" and various have been the answers, the majority inclining to the belief that it is taken solely for the natural insect which it purports to represent. Others say "minnows"; others still "both." To my mind all these opinions are correct though in different places and at different times. Usually in quiet, much fished waters they do take the fly for the real insect; farther north, especially when large and submerged, for a minnow, and again for something else. But, in spite of the "nature fakers," no American trout ever passed an examination in entomology, and I am sure that when a hungry trout rises to the fly he is not in a comparative or analytic mood; he simply sees *something that looks good to eat* and goes for it! Especially is this the case in the north woods where trout feed on a multiplicity of foods, and where their habit, as any experienced angler knows, is to attack anything that looks edible. Who has not seen a trout take into his mouth innumerable small objects, from artificial flies to maple-buds, and immediately eject them after trial of their character?

That he cannot possibly recognise the natural

insects upon which he feeds in the lures which are generally cast over him is shown by a glance at such favourite northern flies as the Silver-Doctor, Parmachenee-Belle, or Jenny-Lind, mere fanciful combinations of colour bearing no resemblance to any living creature. The English angler with the floating "dry-fly" begins operations by observing upon what insect the fish are feeding, selects then from his dry-fly box the fly made in imitation of that insect, casts it lightly just above a trout that has risen, and allows it to float down over the fish. It is possible that this method, which is a very fascinating and scientific form of angling, would be crowned with success in some parts of our country if we only possessed flies tied in exact imitation of our native Ephemera, which we have not,—a fact not complimentary to the enterprise of our tackle-makers. In northern waters, and using English flies, I have always found dry-fly fishing a failure compared with the wet, lively fly method, undoubtedly for the already mentioned reason that our brook-trout ignores most dead baits, at least on the surface. Our northern waters are generally somewhat discoloured and mostly running, and the gaudiness of the highly coloured flies enables them to be the more easily seen.

Another ancient and classic dispute is that between the "colourists" and the "formalists," as to whether colour or shape is the more important in a fly. One man, asserting that shape was quite secondary, fished all day with a bunch of red worsted tied to a hook and took a lot of fish, while in England a well-known angler, Sir H. Maxwell, made just the opposite statement, and threw the dry-fly purists, to

whom the slightest shades of colour are as important as Magna Charta, into confusion by taking fish after fish with flies of the regulation dry-fly pattern, stained however a brilliant red and blue! One may say in general that the rougher and more opaque the water, the more important does colour become. Most orthodox anglers may be described as "colour-ist-formalists," believing in the importance of both elements.

The books are by no means closed upon all these interesting questions, and every one has a right to an opinion, so long as it is founded on experience and reason. In the matter of the choice of flies there is but one sound rule: lay in a stock of those which pass for the best in the region where you intend to fish, adding to it then according to fancy.

Varieties

Of the "dry," or exact imitation flies, mentioned above, made with quill, straw, or cork bodies, so that they will float, none are tied in this country. J. Harrington Keene (whose death last year every angler will regret) used to tie, assisted by Mrs. Keene, an exact imitation, scale-wing, detached-body fly, but the ignorance of entomology on the part of our fishermen prevented their taking enough interest in it to make it pay, and the dealers therefore dropped it, more 's the pity. Exact imitations of several insects, as the stone-fly, bee, etc., are made of soft rubber, but are indifferently turned out and hardly worth trying for trout.

Of wet flies we have the *winged*, the *hackles*, and *palmers*.

The ordinary pattern of winged fly is tied on an

eyed or snelled hook, and consists of head, body, tag, wings, tail, and hackle, some flies being without one or more of these parts. The hackle is supposed to represent the insect's legs, moving with the motion of the water and thus rendering the fly attractive to the fish.

Winged Flies

The wings of American flies are usually made "reversed," *i.e.*, they are placed, in making, on the hook pointing towards the eye or snell, and then, after the hackle has been tied on, they are reversed, so that they point back towards the "business end" of the hook. This gives strength and makes a head for the fly. The tag is a narrow binding of herl, feather, or silk at the junction of body and tail. "Double-winged flies" are provided with two pairs of wings.

FIG. 40.—Winged Fly, with Helper

Hackles are wingless flies with the hackle secured at the head. Palmers are similar, except that the hackle extends the whole length of the body. Both are excellent lures, as they keep their shape in the water better than ordinary winged flies, the wings of which generally cling closely to the body when drawn through the water, whereas the natural insect more often spreads its wings when shipwrecked and afloat.

Hackles; Palmers

The old method of securing the artificial fly to the leader was by means of a snell of gut whipped to a straight-shanked hook, and this is still universal in this country, the best flies being tied with "help-

ers," or double gut next the hook, to give strength. The loop in the end of the snell is passed over the loop of the leader and the fly through the leader-loop. About twenty years ago eyed hooks for flies came into use in England and are now practically universal, the common pattern having the turn-down eye. The eyed-hook fly may be directly attached to the leader by a knot, or a looped snell may be first attached to the fly and that to the leader, like the ordinary American fly. There are several knots for attaching eyed hooks to the leader.

Hooks

Jam-Knot. Holding the fly with the hook-eye turned upwards, pass the well-softened leader end through the eye towards the point and then back upon itself; then make a slip-knot round the body of the leader. Draw this slip-knot small and then back to the eye, so that it will just pass over the eye; draw the slip-knot tight in that position. Clip off extra gut-end. (Figure 41.)

FIG. 41.—Jam-Knot

Double-Hitch Knot. Pass the leader-end through the eye towards the point of the hook, then twice round the shank and tighten. This is not so secure as the jam-knot or the following Turle-Knot.

Turle-Knot. Holding the fly as before, pass the leader-end through the eye and run the hook out of the way several inches up the leader; make a slip-knot with the leader-end round the leader itself and draw tight, leaving a loop, which is then passed over the hook and drawn tight. (Figure 42.)

The beginner need not worry about the form of his fly-hooks, as long as he patronises a reputable

dealer, as any of the common patterns will do, providing the quality is good. The favourite styles are the Sproat, Pennell, O'Shaughnessy, Limerick, Carlisle, Perfect, and Sneck. Most English flies, especially small ones, are tied on Pennell or Sneck hooks.

Shape of Hook

Fig. 42.—Turle-Knot

There are now several standards of measurement for fly-hooks, but the old one may be adhered to, as the dealers know it and will furnish flies according to it, even when the particular style of hook has a different standard.

Sizes of Hooks

In Great Britain, where every trout water has been fished for many years, you will find lists of favourite flies, not only for every stream but for every fishing month in the year. In our vast country, piscatorially including the Dominion, the making of such a list would be a very "large order" indeed, though we have already made a beginning. The trouts of America differ to such an extent in their predilections, and even the individuals of the same species in different waters, that it is a difficult task to give lists of spring, summer, and autumn flies that shall not be too general to be of much value. As this book is primarily meant for sojourners in northern waters, our task is somewhat simpler. There, in spring, when the freshets change even quiet streams into torrents

Patterns

Sizes

and tinge the waters with colour, larger flies may be used than later, when the same waters have resumed their wonted serenity and limpidity. Thus in spring flies tied on No. 6 hooks are often not too large for Maine or Canada, and No. 4 is not unknown. In summer No. 8 is large enough and Nos. 10 and 12 much used, with 14 for very clear, quiet waters. Large flies are justifiable in rapid, swirling, or foamy streams, as they can be more easily seen by the fish. The ancient rule says that bright flies take best on dark days and dark flies on bright days, and this is in the main true,—with the exceptions that always obtain in all departments of the art of angling.

Colour

As to the value of a given fly at different seasons and in different places, the evidence is very conflicting and as yet not voluminous enough, for the reason that our anglers have not taken the trouble to make and publish exact records of the flies they have used, or of the insects on which the fish have been feeding. Our trout too seem to be more fickle than those of the old world, one reason for this being the more extensive *menu* of our fish. There is no hard and fast rule. Who, for example, has not discovered that the fly which was the best killer last season seemed to be somewhat out of date this, either from a difference in the depth or character of the water or a caprice of the trout?

The tendency of beginners is to choose flies tied on too large hooks. Stick to No. 8, with No. 6 for turbulent waters and No. 10 where the fish are small; after a season or two you will have ideas of your own on the subject. Remember that the smaller the fly the lighter the leader should be. If your line

is not tapered the leader should be as long as possible when using a small fly. On waters such as those of Pennsylvania or Connecticut, No. 10 and 12 hooks are large enough. In the mountains of the West the same general rules apply as in our north woods.

Suggested Lists

The following lists of flies are offered, not as the best, for opinions, even among good anglers, differ widely on this subject, but as working bases. They are supposed to be answers to the question: "What three dozen flies shall I take with me?"

Eastern Canada, Northern New England and New York, etc., Spring Flies

6 each: Silver-Doctor, Parmachenee-Belle, Brown Hackle (red body).
4 each: Montreal, Jungle-Cock, Brown Hackle (herl body).
3 each: Coachman, Professor.
Substitutes: Jock-Scott, Grey Hackle, Black Hackle, March-Brown, Jenny-Lind, Alder, Doctor Breck, Brown Palmer, Grey Palmer.
For *summer* in the same regions may be added: Red-Ibis, Royal-Coachman.
For *autumn* the spring flies will do.

Southern New England, New York, Pennsylvania, and South

4 each: Red-Spinner, Black Gnat, Brown Palmer, Red Hackle, Silver-Doctor, Beaverkill, Cahill, March-Brown, Alder, Cowdung.
Substitutes: Grey Drake, Cinnamon, Yellow-bodied Professor, Black Hackle, Brown Hackle (herl body).

For the more southerly regions however the makers are beginning, oh, so slowly! to tie flies in exact imitation of the Ephemeridæ there found on the waters, and the next few years will see a great advance in this

particular. Those wishing special patterns in flies can have them tied, if not competent themselves, by sending the patterns to some reputable maker such as C. F. Orvis, of Manchester, Vt., Abbey & Imbrie, Abercrombie & Fitch, or Mrs. J. H. Keene. The last-named, widow of the lamented angling author, ties only to special order and her flies are of exquisite workmanship. (Address: Queens, L. I., N. Y.)

As there are some hundreds of patterns of trout-flies mentioned in the dealers' catalogues, about forty to fifty of which are in common use, it is evident that such lists as the above can have only a comparative value. They contain, however, most of the popular patterns, as recommended by the leading authorities. But before buying it is well to consult some angler who has had experience in the waters chosen, as there are always local conditions of importance to learn.

Envelopes

Flies in quantities are best kept, if on gut snells, in stout envelopes (parchment best), one pattern in each, with the snells in as loose coils as possible. Shake a little powdered camphor into each envelope, which should be marked with the name of the fly. The envelopes are then stored in the trays of the tackle-box or elsewhere safe from moths.

Boxes

The best receptacle for eyed flies consists of sheets of cork fixed in boxes so deep that the flies may stand upright without touching the sides. Beautiful though high-priced boxes of tin and leather are made by the British and sold in this

country. They run from the little rosewood or japanned boxes containing from 60 to 150 flies up to the luxurious $40.00 cabinets fitted with moth-proof trays. A pocket eyed-fly box of good workmanship costs from $2.50 upwards. (A cheap and somewhat crude one is made by Abbey & Imbrie for $ .35.)

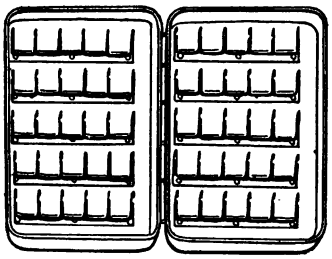

FIG. 43.—Eyed-Fly Box

Eyed flies of the regular "wet" shape, which can be stored flat without injury, are generally carried in flat boxes or leather books furnished with clips to which the hooks are secured. (Price of boxes, $2.50 to $7.00.)

The dainty English dry-flies are kept either in a cork box, as above, or in metal boxes provided with several small compartments, one for each fly. (English price, $2.00.)

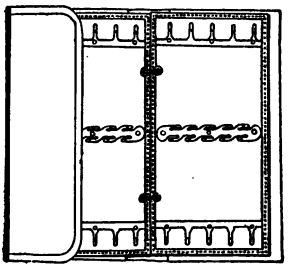

FIG. 44.—Bar and Clip Fly-Book

Fly-books

The supply of snelled flies for actual use on the stream is carried in a fly-book, which should be of stout leather (canvas in cheaper grades). A good pigskin fly-book will wear out half a dozen "cheap and nasty" ones, though it will cost from $5.00 to $7.00.

Among the various patent fly-books exploited

by the American dealers are the "Bray," the "Chubb," the "Monarch," and the "Bar and Centre-Clip," the last of which appeals most to me, though it is not made in very high-grade leather. Better than all, though expensive, is the "Levison" book, the only one the mechanism of which holds the fly absolutely fast.

There is now on the market a convenient aluminum or ebonite box, the "DeWitt," furnished with felt pads and gratings, which keep the snells of the flies wet and the hooks dry. It costs but $ .75, and is an excellent article to have. In copper it costs even less.

Cast-cases

A cast, in piscatorial parlance, is a leader ready-furnished with one or more flies, combinations known to be killing on certain waters. For these special flat cases of leather with canvas covers and parchment or celluloid leaves can be had, very convenient to carry in the pocket. One with pigskin covers costs $1.50.

Care of Flies

Keep flies from moth and rust and do not crush them. Wipe the hooks with an oiled rag before storing away. If put in the book wet they will rust and hurt both fly and gut.

One of the joys of angling is the annual pre-vernal overhauling of the tackle and particularly the flies, which are laid out, counted, and sorted again in their books and boxes. Frayed snells are replaced, the old veterans segregated, and, the chief delight, lists made of new flies to be purchased.

Landing-Nets

Nets mounted upon handles are used to dip the

fish from the water when exhausted, thus saving the strain on the rod which would be necessary to lift the fish. The best net for canoe fishing is of coarse waterproofed twine, about sixteen inches deep and square at the bottom, mounted on a wood or cane handle some four feet long, the net depending from a metal ring from twelve to fourteen inches in diameter. The old-fashioned iron ring fitted into the shaft by

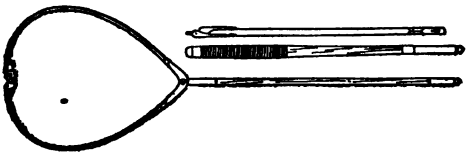

FIG. 45.—Harrimac Net-Frame

means of a spike, but all the good features of a strong yet light trout landing-net are now found combined in the modern collapsible nets, such as the well-known "Harrimac," consisting of a steel collapsing net-ring fitting on to a two-piece handle, so that it may be used either two or four feet long. Net, handle, and ring fold together, when taken down, in a convenient roll. Without net the "Harrimac" costs (rust-proof metal and bamboo handle) $2.25. A good net, which should be of heavy brown waterproof twine with a fairly fine mesh and square bottom, costs, for the eighteen inch length, from $1.00 in braided linen, to $2.00 for the best "enamelled." Bright yellow nets frighten the fish.

For wading a short-handled net is best. The folding "I-D-L," with a twelve inch handle, is an excellent one, and can be had with a stout elastic cord, enabling it to be carried round the neck, the elasticity of the cord enabling the fish to be netted without

removing the net from the neck, while when not in use it is thrown over the back. Another much cheaper short-handled net has an oval wood net-frame which screws to a wood handle sixteen inches long, a serviceable combination costing only $ .85. I have used one of these for years. To the end of the

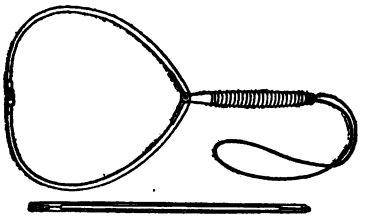

Fig. 46.—"I-D-L" Net-Frame

handle I attach a piece of strong but pliable leather with a buttonhole, and carry the net hanging from a button sewed to the back of my coat or waistcoat-collar, as the case may be. When needed it is easily unbuttoned with the right hand, as the button is placed a little to the right of the middle. These nets are also made with very light cane rings and handles in one piece, but they are hardly strong enough for much usage.

Some appliance by which the wading net may be attached to the person, thus leaving both hands free for other tasks, is very desirable on our tumultuous streams. The pins sold for this purpose are far too flimsy. British landing-nets are very expensive and in some ways not as good as ours.

Creels

Creels, or fish-baskets, are handy for short trips, especially when the trout are small. On long canoe-

trips into the wilderness they are in the way, a well-worked and twisted withe being sufficient in case one is walking. The regulation creel used in this country is a French production of plaited willow with a hole in either the middle or one side of the top through which to drop the trout, and for ventilation. No. 4, holding twenty-five pounds of fish, costs without strap $2.00;

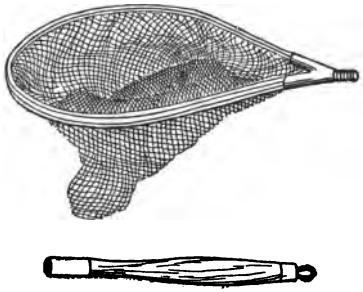

FIG. 47.—Wooden-Frame Net

holding thirty-five pounds, $3.00. The strap should be "new style" ($1.25), with a narrow strap round the waist and a webbed sling for the shoulder, preventing any undue and sudden sliding round of the basket, which, when full, is more than likely to throw a person off his balance, with dire results if on a rapid and rocky brook.

Another willow basket is the "Brodhead," which is longer than the usual style, enabling bigger fish to be carried laid out straight. The "Levison" basket has a composition top, side hole, and bolt-lock (price $4.50). The best colour for a creel is a matter of taste. Brown is less conspicuous, but draws more heat than straw-colour.

The "Duplex" is a waterproof brown canvas

creel folding up when not in use, a convenient feature ($1.75 and $2.25). A simpler folding canvas creel costs $1.00. I have never used any folding creel and cannot therefore recommend them from personal experience.

H. P. Wells's *Fly-Rods and Fly-Tackle* is the standard American authority on this subject. Another book on fishing-tackle announced to appear shortly, *The Angler's Workshop*, by Perry D. Frazer, editor of *Forest and Stream*, cannot fail to be up-to-date and authoritative. **Bibliography**

REPAIRING

There is no more delightful occupation for an angler than to make his own rods and tackle, a subject, however, altogether too extensive to treat of in a manual of this kind. Young fishermen cannot be too strongly urged to take it up, beginning with tying their own leaders, and progressing as far as their skill will allow, even to the supreme point of constructing a fly-rod of good quality. The work, even if only partially successful, will be found fascinating and most instructive. I have personally received many a valuable lesson from my bungling efforts to tie a trout-fly that would pass muster. Those who wish to take up the subject seriously should begin by procuring the books by Mr. Wells and Mr. Frazer just mentioned.

The following instructions are intended for fishermen who suffer the commoner accidents on the stream itself, and are purposely made as simple and terse as possible.

In the first place never go far from camp without having in your pocket or fly-book a yard or so of winding-silk (size O, or if not obtainable, then A); a small flat file (if necessary with the tang taken off to go into the fly-book); a piece of cobbler's wax kept in a piece of kid glove; and at least one rather large-

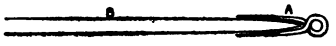

FIG. 48.—Temporary Tip, Single Loop

sized ring-tip. One or two ring-guides and keepers are also convenient to have. Most serious accidents occur to the rod. A broken reel, or one too badly bent to put in shape on the stream, cannot be used for the moment, but, in case there is no spare reel handy, one can make out to fish without a reel. Any difficulty with the reel-seat can be obviated by lashing the reel to the rod with twine or a piece of fish-line. No line in fair condition is likely to break except near the end, so that there will always be enough on the reel in reserve. Of leaders and flies a supply is always carried on the person.

FIG. 49.—Temporary Tip, Double Loop

Broken Top. If a top-piece is broken so that at least half of it is intact, file or whittle it down to fit the reserve tip you carry in your fly-book, first waxing the wooden end slightly. This will do temporarily; when you return to camp you can replace the tip with angler's cement, a small stick of which should be in your kit. It is softened by heat. If you have no extra tip, a temporary one must be made out of brass or copper wire, or failing this, of

a stout pin with the head filed off, bent into a single or double loop, the two ends being whipped to the rod with waxed silk. (Figures 48 and 49.) If there is shellac in the canoe, coat the winding with it. The two parts of a broken top may be spliced together, especially towards the tip, with a quill softened in warm water, split lengthwise, trimmed to fit, and then placed over the break and whipped on with waxed silk. Breaks, or partial breaks, in the upper half of the middle joint or stout part of the top can be pretty strongly mended by wrapping a rubber band, well stretched as you wind, round the break, and tying it securely in place with twine or silk. I have elsewhere recommended taking a small roll of bicycle-tire for the purpose of mending canoes. If a piece is handy it can be used in place of the rubber band.

Breaks in the *lower half of the rod*, if just below a ferrule, the most likely place, are repaired by re-

FIG. 50.—Broken Pieces Fitted Ready for Wrapping

moving the broken piece from the ferrule, into which the other broken end, after being filed and scraped, is fitted. The scraped end may be rubbed with cobbler's wax temporarily. Afterwards in camp the end can be more securely fitted into the ferrule with cement.

Breaks at least a few inches from a ferrule must be spliced. If the break is a splinter, so that the two parts present a long surface that may be wrapped, this may be done. If the break is short off, the two

parts are cut and filed down and fitted together (Figure 50), the fitted sides being slightly roughened or scored. Care must be taken to make the splice so that the guide-rings shall be in exact line. Glue should really be used for the splice, but as we cannot carry that in our pockets, we warm the two pieces and the cobbler's wax over a fire, coat the pieces thinly with the wax, and keep them pressed together until stiff, after which the splice is wrapped with silk, or, failing that, with twine. In case you have no wax, a somewhat unworkmanlike but effective splice can be made by means of a couple of slender wooden splints (of ash or oak) wound with twine.

FIG. 51.—Temporary guide

If an important guide-ring is lost a temporary one can be made of a piece of wire or a pin, the ends being filed sharp (Figure 51). The twist is made, after the loop has been formed, by inserting the latter in a cleft stick. If too difficult the simple loop will do. Wrap it to the rod with waxed silk, and bend the loop so that it will be in line with the other guides.

How to Make a Wrapping

It will be noted that a successful result of nearly all repairs of the rod depends upon wrapping, which, as it means only winding the silk round and round the rod while keeping the rings taut and close together, is not a difficult task. The hard part comes at the end, when the wrapping must be finished off securely. To do this we must learn the secret of the *invisible knot*. Suppose you wish to replace a lost guide-ring. Remove the remains of the old silk and begin the new wrapping as in Figure 52. The loop extending along the

rod must be slightly longer than the projected wrapping. Now complete the wrapping, rolling the rod from you. When finished the end A is pulled until only a tiny loop remains. We then cut off our silk at B, leaving about two inches, and pull the end B through the loop *a*. Finally we pull on the end A, which draws the loop *a* (and the end B) under the winding and confines it securely. Cut off the ends closely. A little practice and the thing is easy.

FIG. 52.—Beginning of Wrapping

FIG. 53.—Double Hitch Fastening

If for any reason the invisible knot cannot be made, the wrapping may be finished off by the double-hitch fastening, as in Figure 53.

To Oxidise

Many metals used for angling implements are some kind of copper alloy, which may be oxidised by Mr. Wells's recipe, as follows: In a wide-mouthed bottle put a pound of ordinary nitric acid and a silver ten cent piece. Put in a warm place with the glass stopper loose, and allow to remain until the silver is dissolved (two or three days at least). Then add four inches of rather thick copper wire, which dissolves rapidly. Scrub and dry the metal for treatment, and secure it to a poker by means of copper wire. Dip it in the solution, shake off drops, and hold it in a bright flame (alcohol or gas best). It will turn green, then black, when it is removed from the heat, and allowed to cool. Rub

smooth. The result will be a surface of black oxide of copper.

CASTING THE FLY (SINGLE-HANDED)

The object of casting is to present the lure to the fish in the most advantageous manner, the principal point being to drop it lightly on the water, as if it were a natural insect, and in any desired spot within a radius of from forty to sixty feet, according to one's powers. The latter distance would be short in a fly-casting tournament, but very few men can make a cast of even fifty feet and still have the flies alight gently, falling, as it were, of their own weight. In tournament casting very long throws invariably result in the flies being slapped on the water in a manner more likely to frighten than to entice the fish, except in turbulent water. The casting of such men as Leonard, Darling, Frazer, Mills, and others of the first class is both marvellous and instructive, but the beginner is recommended to forget long casting in tournaments entirely when he joints his rod on a trout stream, for distance is entirely secondary, yes, tertiary, to lightness and accuracy.

Learning

The best way to learn to cast the fly is to put oneself in the hands of an experienced friend. Failing him, proceed as follows. Rig the rod with reel and line but without leader or fly. Take an easy stand with the left foot slightly in advance, either on the bank of a stream with plenty of room before and behind, or, if more convenient, on a lawn. Grasp the rod in the right hand as in the cut, the thumb on that part of the handle where the rod seems to balance best. From the very first keep

two things in mind. First, remember that casting is a matter of *wrist* and not arm movement, and, secondly, during practice, especially for the first few weeks, keep the casting-arm very close to, if not actually touching, the body. If the latter rule is rigidly adhered to, a correct and easy action will follow of itself. At first the elbow should hug the

FIG. 54.—Position at Beginning and End of Cast

FIG. 55.—Position at Top of Back-Cast

body even at the end of the cast. With growing efficiency the caster's movements may, in fact necessarily will, be modified and become freer. Pull from the reel with the free hand as much line as will reach twice the length of the rod and let it lie on the ground in front of you. Now, holding the rod with the tip slightly above the horizontal, forget for a moment that your arm consists of anything but a wrist, and

with a sharp upward movement *of the wrist* (aided involuntarily, of course, by the forearm) cause the rod to sweep up smartly, checking the movement when it points over the shoulder, but not farther back than to make it form an angle of over thirty degrees with the body. The result of this upward flip will be that the line will fly up into the air and out behind until it is straight. This is the *back-cast*, which is completed the moment the line straightens out behind, the rod at that instant being slightly bent back by the weight of the line and the impetus of the throw.

Back-cast

Now just at the nick of time (no sooner, no later) the rod is swept down again by a quick, almost jerky movement of the wrist, which is suddenly arrested so that the rod shall not form a smaller angle with the water than fifteen degrees. (Figure 54.) This is the *forward-cast*. From the above it will appear that the cast consists of three periods: the back-cast, the pause while the line straightens out behind, and the forward-cast. Of these the first movement, or back-cast, is the most important element so far as the beginner is concerned, for, if not mastered, proper casting will ever remain to him a closed book. Two general mistakes should be guarded against from the very first: the use of arm instead of wrist, and too little energy. The movement should be a quick and strong flip, almost a jerk, the flies being twitched off the water and tossed into the air, not horizontally backward, but skyward, above the head (steeple-cast). This throwing the flies up and not only back will correct the almost universal mistake of beginners: allowing the rod-tip to drop

Forward-cast

too low behind the body, often causing the flies to strike the water or ground behind, which is both ugly and fatal to the cast. Having mastered the back-cast, turn your attention to the second important element, the pause between back and forward casts, also pretty generally neglected by beginners, the result being that the forward movement is made before the flies stream out behind, and the line will not shoot out properly, besides which the flies are apt to be snapped off. This premature forward-cast is generally detected by the distinct snap of the leader. Rather exaggerate the length of the pause between the casts, and never forget that the complete cast consists of three, not two, periods. Here is where the coach comes in, who shall call out "Now!" the instant the line is straight out behind. When alone the beginner should count three in casting, about as follows: "One!" (as the rod is swept upward); "Two!" (as the line and leader straighten out behind, the rod being held motionless); "Three!" (as the forward movement begins). Do everything smartly but cleanly. Avoid dragging or lackadaisical movements, and remember first, last, and all the time that it is a matter of the *wrist!*

The Pause

Casting is less a matter of muscle than of knack. It is the art of making the movement so correctly, and so timed to the tenth part of a second, that no portion of the expended energy is wasted, and so that the rod will respond with all the power there is in it. "Let the rod do the work," is an old and sound adage.

When you are able to lay out two or three rods' length of line with perfect ease, and without snapping the line or hitting the ground or water on either

side with the tip, and can lay the line across any part of the water aimed at, tie on your leader and a single rather large fly (best with barb cut off, so as not to catch in the foliage or your friend's ear), and gradually lengthen your line as you improve, but master one length before adding another yard. In order to avoid slapping the water with the fly observe the following golden rule: aim your fly at an imaginary point in the air about a yard above the spot in the water upon which you wish it to fall; then, even if the cast is a little brutal, the energy will be expended in the air and the fly will fall lightly upon the surface.

When you are able *always* to place a fly *gently* upon any desired spot within forty feet you are an expert so far as trout-angling is concerned. Few can do better.

Another important piece of advice: learn from the first to cast with either hand, so that the work will be divided and neither will tire; and because the position of the boat or canoe, the direction of the wind or current, overhanging foliage, or some other element, may render it awkward or even impossible to cast with the accustomed hand. Learn this ambi-dexterity from the start, as later it is much more difficult. Of course each will always have his favour-ite hand, but the other should be ready to help out.

When fishing humour arm, wrist, and hand. Do not grip the handle spasmodically, but hold it quietly, occasionally favouring this or that finger by changing the force of the grip. This will prevent cramp and keep the muscles supple.

For hints regarding the management of the cast in actual fishing consult the section on *Trout-Fishing*.

The regular cast described above, which is usually

called the overhead-cast, since the flies are thrown up into the air, is the one which will be employed four fifths of the time in actual fishing, and, it once mastered, the many variations will come easily. Of these may be mentioned the *wind-cast*, used when the wind is from the direction in which the cast is to be made. It is merely a sharp, quick overhead-cast with a very forcible forward-cast, the rod being brought down so that the tip all but touches the water. The *underhand-cast*, used when obstructions prevent the overhead, is carried out by switching the line sharply to one side, and, when the leader has straightened out, switching it back and out. Naturally no great distance can be covered thus, but the cast is often very useful. When no back or side cast is possible, which is sometimes the case on small, overhung streams, resort must be had to the *flip-cast*, which can be made only with a line about as long as the rod. The fly is held between thumb and forefinger of the free hand (don't hook yourself!), pulled back so that the rod is bent, and then released, the spring of the rod jerking the fly out upon the water. Other casts of more complicated nature need not concern the trout-angler. Those interested in tournament casting may consult Lou S. Darling's valuable little book, *Tournament Casting* (Forest and Stream Publishing Company, New York).

BROOK-TROUT FISHING

The brook-trout of eastern North America (*salvelinus fontinalis, i. e.*, charr of the springs) has been assigned by the wise men to that class of trouts called charr (*salvelinus*) because, unlike the salmon (*salmo*) and the trouts built exactly like the latter, it has no

teeth on the front part of the bone of the roof of the mouth. This minor structural difference need not bother the angler, for our brook-trout is not only the most beautiful thing that swims, but yields to no trout in fighting qualities. He lives only in the coldest and purest of water and will rather starve than feed upon carrion of any kind. Mr. W. C. Harris says,

"No other fish known to anglers possesses habits so free from grossness as the brook trout of the East. . . . When you hold him, seemingly exhausted, hard and fast in your hand, to take the hook from his mouth, he will draw his muscles tense and strong in a final effort for liberty,—no other game fish, to my knowledge, makes this powerful, convulsive struggle after capture and apparent exhaustion" (*Salmon and Trout*).

If not already in the streams it begins to ascend them in September and spawns in October and later, usually in the sand as far up-stream as it can get. From April to the middle of July (in Canada) it lives for the most part in the streams, where it finds its most abundant food-supply in the shape of insects, small fish, and even such tidbits as young mice. By the beginning of hot weather it has returned to deep water, usually the lakes, or, if none are available, the deeper pools or under the shade of lily-pads. In the lakes it will most often be found off the mouths of cool streams, sometimes in very shallow water, under the pads.

Our trout is clipper-built and symmetrical, with powerful tail and large mouth, the lower jaw often projecting beyond the upper, especially in old fish. The tail when spread has almost no fork, giving rise to the familiar Maine term, "square-tail trout,"

The rich, dark olive-green back is vermiculated and its dark-golden sides are ornamented, both above and below the dark horizontal median line, with yellow spots, as well as bejewelled with a lesser number of brilliant red dots set within areolæ of sapphire, whence the name "speckled trout." The red-and-black fins are bordered with white. The belly ranges in hue from the rich gold of the spawning attire through many shades of yellow to grey and even pure white, according to season and the colour and nature of the bottom, for no fish is so sensitive in this regard. The sea-trout, which is merely the brook-trout which runs down to the sea at certain periods, returns so silvery light in hue that it was for years held to be a separate species, while trout taken from deep shaded pools are often nearly black. In the spawning season the colouring is richest, and not even the gorgeous fishes of the tropics can rival *fontinalis* at this time. These differences in tint, which extend even to the colour of the flesh, led in former times to the erroneous belief that there were many subspecies of brook-trout. It is a pity that, when confined in aquaria, this incomparable fish loses most of its brilliant colouring.

Size

Genuine *salvelinus fontinalis* of ten pounds and even heavier weight are occasionally taken in the Rangeley Lakes of Maine and in some waters of Canada, but such monsters are very rare. In other regions a three-pounder may be considered a "whale," and a two-pounder a very large fish. But let us cheer up, for every ounce a trout gains after he weighs 1¾ pounds tends to make him sluggish, though of course there are heavy fish that

fight splendidly. After all it is not a matter of weight by any means, but of fighting quality. Trout are individual, like men. It always seemed to me a little ridiculous to see in some angler's sanctum the stuffed skin of a five-pound trout with a huge pot-belly and absolutely no pretence to beauty. Why set up in our halls statues of Venus and of the Apollo Belvedere when we can get a figure of Daniel Lambert, the fattest man who ever lived? A trout should be valued first by the fight he puts up, secondly by his beauty of form and colour, and thirdly by his weight.

Dress

In general ordinary camp costume will do. We may leave mackintosh and rubber wading-boots and stockings to the angler who goes forth from some country hotel, as they are heavy and cumbersome, and, though impervious to water when new, they never keep the feet dry, for the simple reason that the feet unfailingly sweat in them. Nor are heavy wading brogans necessary. The best thing to do is to get over any shyness of wet feet as soon as possible, for you will not be injured by that condition so long as you wear woollen stockings and drawers. When you get to camp dry off before the fire in coldish weather or change for dry togs; in warm weather most people prefer to let their wet footwear dry on them. If you have a decided tendency to rheumatism keep out of the water as much as possible.

For wading, which involves springing from rock to rock, shoes having stout soles studded with a few well-placed small (Hungarian) hobnails are best. I refer shoepacks (see p. 23) with such nails, and very

seldom slip, protecting my ankles and calves with a pair of stout leggings. Ankle-shoes are perhaps a better protection from the rocks. If high shoes are worn a slit or two near the sole will allow the water to run out. One should be careful when wearing hobnailed shoes not to injure the bottom of the canoe. "Sneakers" cling to the rocks while they last, but that is not long, and they offer little protection against sharp rocks. If shoes are kept well greased they will dry soft, or rather will not really get wet, but can be emptied of water and put on again.

Belt

A stout leather belt should be worn, from which the hunting-knife is suspended. If it has a shiny buckle turn it to the rear.

Gloves

In fly-time a pair of stout dogskin or buckskin gloves, well greased and with the ends of the fingers cut off, may be recommended, as the hands are always a principal point of attack, especially the rod-hand.

Equipment

On the person are carried the head-net, dope-can, balance-spring scales, fly-book, cast-case or leader-box, and the miscellaneous contents of the pockets (jack-knife, match-box, tobacco-pouch, compass, pipe, emergency lunch, etc.).

Repair-kit

A shallow japanned tin box, 5½ by 3 inches, I have found large enough to contain a bit of wax, rod-cement, fine screw-driver, cutters, tweezers, winding-silk, a few guides or guide-rings and keepers, extra tips, flat file, oil-can,

rubber bands, foot of copper wire, small screws, etc.

Fish-bag

On canoe-trips I have found a small stout leather shopping-bag that has outlived its beauty a most practical convenience. In it may be kept all the fishing-tackle and other small articles. It does not leave the canoe but serves as a general store on day trips. Grease it thoroughly on the outside. Fish-creels are seldom taken on long tours in the woods.

The rules and considerations contained in the following pages must be regarded merely in the light of stimulating hints, for in no sport does experience claim a larger share than in fly-fishing for trout. Let the beginner assimilate as many of them as he can, and then, after a few days on the stream, reread them carefully, with a view to recognising how far short of them he may have fallen. In the light of his experience many of them will have acquired new significance.

Arrived upon the chosen water the angler is confronted with manifold practical considerations: at what time of day to fish, whether up or down-stream, what flies to use, how to stand, to cast, to manipulate the flies, to hook the fish, to play it, and to net it.

Time of Day to Fish

To this question may be given the same answer as to the query: "At what time are the trout feeding on the surface?" In early spring, when the mornings are cold, there will be few flies on the water, and consequently the trout are not likely to be stirring, for which reason there is

no necessity to turn out before breakfast, for the fishing is likely to be better at nine or ten than at eight o'clock. At this season it will probably continue all day, stopping when the chill of evening comes. Later, as the summer approaches, the flies, and consequently the trout, will be astir at an earlier hour, and in really hot weather the very early, before-breakfast angler will find his justification, while there will be little use in wetting a line between noon and four o'clock, though exceptions are many. In summer the best fishing is often enjoyed in the evening hours, say from 6 to 7.30.

General Weather Conditions

Extremes are not generally good for fishing. On cold, raw days the fish will not rise freely and those that do will be sluggish, while the same is true on very hot, sunny days. It is no fun to fly-fish in a heavy wind or in a pouring rain. The old-time fisherman's day, which was always overcast, is by no means a necessity; rather the contrary, for the reason that the sun brings out the insects, and it is the angler's bitter-sweet experience that trout-bites and fly-bites go together. A warm rain, if not hard, is an ideal condition, and I have found a fog in summer very favourable. A perfect calm allows the fish too clear a vision, a light breeze, which ruffles the surface, being more advantageous. The old rule which says that trout never rise during a thunder-storm is quite wrong; I have often enjoyed lively fly-fishing during heavy thunder. We all know how fickle the sensitive trout is, and no man can fathom its vagaries, as, for example, why, with no apparent reason, rising will stop of a sudden, during good fishing, as if

by some signal from the king of the pool. In Canada I have often observed this at sundown in spring.

Up- or Down-stream.

If the chosen water is reached on foot by a path through the woods, it is best to carry the rod unjointed, the joints being held together by rubber bands. Arrived at the point where the first cast is to be made, the first question that arises is whether to fish up-stream, as in England, or with the stream. Across the ocean, where the streams are usually of a clear and tranquil nature, up-stream fishing is the only approved method, and for two principal reasons: first, because all fish lie facing up-stream and cannot therefore see the angler as he casts the fly over them, and, secondly, because the fish takes the fly as it floats down; for it must be remembered that the European trout dines mostly off drowned insects. In our country, however, where most streams have a strong and often boisterous current, and where the lure, to be tempting, must be agitated, it is manifestly impossible to adhere to this rule, for the fly would be swirled down upon the angler in a jiffy. Therefore rapid waters are with us fished down-stream. But this rule has exceptions, and I strongly recommend that, where possible, up-stream fishing be practised. Upon streams, like those in Nova Scotia, for example, where rapids alternate with "still-waters" having very little current, it is best to fish the rapids down-stream, but, when a still-water is reached, to go round to its foot and fish it up. This recommendation, I am quite aware, is extremely unlikely to be acted upon, for not only does it involve a certain

loss of time, but the banks are generally so thickly grown that a double journey along them is an undertaking not lightly to be carried out. Up-stream fishing does not necessarily mean casting directly against the current, but rather diagonally across and up the stream, which makes the handling of the fly and line easier.

Arrived upon the scene of action the tackle will have been made ready *en route* if by canoe; otherwise this is done well out of sight of the fish. As to the choice of flies and the method of casting enough has been said under *Fly-tackle*. The angler stations himself so that the shadow of himself and of his rod will not be thrown upon the water, and, keeping as far back from the brink as practicable, makes his first cast over the spot nearest to him where fish are likely to lie, not forgetting to cast at an imaginary spot a few feet directly above the place where the fly shall fall. Fish the nearest likely places first on all sides, and then gradually extend the length of the casts by pulling off more line from the reel with the left hand just before the line is retrieved from the water.

First Cast

Lengthening Casts

The manipulation of the hands in actual fishing is of great importance, but is about the last thing a beginner learns. The work of the rod-hand is simple. It grasps the handle with thumb on top, the line being held under the fore-finger (or fore and second fingers), but not very tightly (Figure 55). Running thus through the fingers from the reel, the line may either be completely checked, as while casting or when stopping a running

The Hands

fish, or the fore-finger may be used merely as a drag, *i. e.*, letting the line run out but slowly and with pressure on the fish. The right hand is thus ever in motion of some kind, according to the exigencies of the moment. The left hand (of a right-handed angler) is the general assistant of the rod-hand, and its principal task is to pull more line off the reel in lengthening the cast, while it is also employed in keeping the line from fouling. When a fish of any size is hooked, the left hand grasps the line just above the reel and the fish is played in this position, the sensitiveness of the hand feeling just how much pressure may be put upon the fish and when to reel in (Figure 56). The pulling off of line with the left hand is apt to result in many yards of line lying at the angler's feet, a condition prone to fouling; for which reason the unnecessary slack should be reeled in as occasion offers, though most fishermen prefer to have a yard or more of loose line between the reel and the left hand "to work on."

FIG.–56. Position in Playing a Fish

Some shipwrecked insects do not struggle when being borne down-stream, but most of them certainly do, and for this reason the artificial fly should be given a wriggling motion by means of slight movements of the wrist, hard to

Movement of Fly

describe but easy to discover by experiment. If luck is bad, success may be wooed by allowing the fly to sink several inches and then retrieving it by a series of tiny jerks (submerged fly). This is best done in comparatively quiet water, and is usually employed in waters inhabited by very large fish, on which account it is the favourite method of anglers in the Rangeley Lakes region, the home of gigantic if somewhat less lively brook-trout. Often when trout are rising but will take no notice of your lure they may be got by changing to a much smaller size of fly on a light leader, especially if you have one resembling the natural insect on which the fish are feeding. This is particularly the case in the mayfly season, when the feed is so good that the trout need take no special trouble to secure a sumptuous repast. Often at this time it is as well to put up one's rod and turn to philosophy and a pipe. But words are really wasted on this subject; trout are odd and fickle fish, and the only rule is to try them with one thing after another until they do rise or it is time to return to camp. Of "dry-fly" fishing I will speak at the end of this chapter.

Keep Your Line Wet

Beginners are prone to fall into two special weaknesses in manipulating the fly. First, they do not keep the fly or flies long enough on the water, but retrieve too quickly. The other mistake is the exact opposite: the flies are allowed to remain on the water so long that when the angler strives to retrieve them he finds that he has no proper leverage. Worse than that, if a fish of any size should take the fly at that time (when it is too near the angler) one of two things is pretty sure to happen:

either the rod will break or the fish will be lost, and a combination of these two disasters is not uncommon. Therefore, while "keeping your line wet," *i. e.*, dragging the fly over as much water as practicable, do not postpone the back-cast too long.

The Rise

The brook-trout is a savage striker, so much so that in his *élan* he often fails to mouth the fly, sometimes, if he is small, making half a dozen or more abortive attempts to secure it, either leaping clear over it or striking short. The latter blunder occurs not so much from bad marksmanship as because of the extraordinary antics of the usual artificial fly, which, contrary to all the known rules of entomology and physics, spends most of its time in swimming directly against the stream, while the natural insect is swept steadily down. Unlike the more deliberate European trout, *fontinalis* will, four times out of five, show a goodly portion of himself, and not infrequently his whole body, in his rush for the fly, for his savage upward shoot is apt to take him clear of the surafce. Especially the little chaps will often turn complete summersaults in the air and fall on their backs, while the big fellows execute the "porpoise jump," a graceful aerial curve, the fly being mouthed at its end. If checked the trout will leap from the water when hooked, but almost never on a slack line, as the bass does.

Hooking

The rising of the trout to the fly, a feature which serves to mark the vast superiority of fly-fishing over the use of bait (saving Mr. Cleveland's presence!), is a delicious moment. You

never know exactly when it is coming, but when it does, then hook your fish. This is done at the moment the hook is actually in the trout's mouth (only a second or two) by a movement of the wrist, the force of which is regulated by circumstances. The old and trite "turn of the wrist" will do for small fish in water which has some current; in fact in rapid water the fish generally hooks itself, and one must have a care not to add so much force to that of the current and the strength of the fish combined as to tear out the hook. For large fish, however, especially in quiet water, one must, as Mr. Wells says, "sock it to them" with the line firmly held under the forefinger. This means a quick and sharp jerk upwards with the wrist and forearm. The whole matter of hooking a rising fish is one of judgment and temperament. Slow-thinking and acting people hardly ever become good fly-fishermen, while again very nervous persons often jerk the fly away before the fish has actually mouthed it. More fish are lost in the hooking process than at any other stage of the game, the strike being either too early or too late, too hard or too gentle.

Striking from the Reel

Those whose tendency is to strike too hard may strike the rising fish from the reel, that is, without checking the line with the forefinger. This will make the strike gentler, for the reason that some line will be pulled from the reel. Of course this can be done only with reels having a rather strong click apparatus, which most good reels possess.

After the display (*i. e.*, covering the water) of

the fly and the successful hooking of the fish comes the important element of the playing, or manipulation of the trout until he has been netted.

Playing

The secret of this is to keep one's line taut every instant until the strain, thus continuously exerted, finally overpowers the trout's strength and he can be led within reach of the net. This strain must be regulated by the size of the fish, the delicacy of the tackle, and the character of the water. The general fault is to "brutalise" the fish, seeking to drag him to the net at once, a plan which too often succeeds with the overstrong leaders and large flies commonly used. But you are not likely to fall into this unsportsmanlike habit if your leaders and flies are as delicate as they should be, for after one or two mishaps you will discover that the fish has a good chance and that he must be humoured and gradually worn down. During the whole process of playing keep the tip of the rod well up, and see that the rod has a constant bend. At the first prick of the hook the trout will dash off and very likely shake himself violently. Right here novices commonly make the mistake of checking him too abruptly. The best way is to check him but with free reel, so that he will pull out more line rather than break the gut. As soon as he quiets down keep the strain on him, and lead him from side to side if the water is smooth enough. The main thing is to play the fish until he is docile. Exceptions occur, of course; for instance in running water, where stronger tackle is recommended. The forefinger may be kept on the line, but not so firmly as to prevent its running out should the fish make a sudden start. The free hand (as described above) is used as a reel and drag.

So long as the fish fights make no attempt to do more than keep him from taking refuge in weeds or under logs, roots, and other obstructions, which he will infallibly endeavour to reach, in order to break the tackle and get free. Meet his every movement with a counteraction, humouring or checking him, as the case warrants, but never allowing the line to slacken for an instant. When he tires urge him gently towards the net, which is held at the surface of the water, ready to be slipped under the fish. When he sees it he will be sure to make another dash for liberty, and just here many a fish is lost, the angler being taken off his guard. Never forget that *fontinalis* will fight as long as he can wriggle, and yields only to complete exhaustion. His fighting qualities, like those of other game fish, vary with season, weather, feed, and water. Small fish are proportionately the best fighters, and, in most waters, those that offer the most lively resistance will weigh between ¾ lb. and 1½ lbs., though of course such a rule has many exceptions. The point to be insisted upon is, that it is quite wrong to judge a trout by his weight alone, as most people do. He should be judged by his gaminess and the consequent sport given. The largest trout I ever killed failed to give me such a struggle as many half his size. Of course this sounds like pure preaching, and anglers will go on to eternity boasting of "the big fish," and believing that a man who takes twenty trout is a better fisherman than he who kills ten, and for that reason only. As a matter of fact the angler has it in his power to insure himself the best of sport (I mean real angling and not dragging scores of fish into the boat) by merely fitting the strength of his tackle to the size of the fish where he

wets his flies. A quarter-pound trout on a 3- or 4-oz. rod, with gossamer leader and No. 10 or 12 fly, will very likely afford as much sport as a 2-pounder on a 10½ foot rod, unbreakable leader, and large fly. If you ever get surfeited with trout-fishing try angling with flies from the hooks of which the barbs have been filed. With these the slightest mistake in playing results in the unhooking and loss of the fish. It is delicate, artistic, and interesting work, but not calculated to please the fish-hogs.

Netting

If a guide or other companion is present who does the netting, he should hold the net at the surface of the water in such a position that, as the trout is brought to it, it can be slipped quietly but quickly under him and then lifted. Let there be no flurry and no wild scooping at fish that are not yet within reach. There is always a pardonable eagerness to get a big fish safely netted, but if he cannot be brought to it he must be played longer. In case the angler nets his own fish he must be doubly careful not to act prematurely. Holding the exhausted fish on a line just long enough to allow him to be floated over the net, let net and fish approach each other by a simultaneous movement of the two hands. Coolness and deftness are needed.

Landing without Net

If you have no net the fish must be completely tired out before attempting to land him. Then either work him to some low place on the bank and drag him out with a quick but deliberate movement, or (when afloat) reach carefully down with the free hand and grasp the trout through the gills with forefinger and thumb

THE END OF THE BATTLE

—somewhat easier said than done. To lift a fish of any size with the rod alone injures the latter. A large fish can sometimes be knocked on the head alongside the canoe.

When your beauty lies gasping in the net, grasp him firmly with the left hand, lift him out, and either break his neck by bending his head back smartly, or give him a rap on the base of the head with the back of your hunting-knife. In any and every case kill him as soon as possible after capture, providing you wish to keep him. If not, gloat over his beauty for not too long a time and return him to the stream to grow and to gladden the hearts of your happy successors.

Kill Immediately

There is a foolish notion abroad that trout taste better if allowed to die slowly, but, even if this were true, no such bloodthirsty cruelty would be justifiable. The real sportsman is always humane, and loves his game even while killing it.

This seems the proper place to urge upon the autumn fisherman never to kill female trout at that season, but to return them to the water, as then they are full of nearly ripe eggs. A gravid female can usually be told by the contour of the belly. A slight squeeze will often cause the spawn to exude.

If the fish are to be eaten within a few hours it makes little difference how they are kept, though they should be protected from both sun and water. The latter has the worst effect and dead fish must not be allowed to lie in water. In the creel they should be kept in dry moss or leaves. A good rule, especially when the

Keeping Fish

trout are to be eaten after twelve hours, is to wipe the fish dry and cover them carefully, so that the sun will not touch them. When shipped they should be cleaned, wiped dry, and done up individually in stout paper (wax or parchment paper best), or in cloth, so that the ice, in which the fish must be packed, will not come in direct contact with them. If there is no ice wipe the cleaned fish dry and rub salt along the backbone. In all cases where the fish are to be a day on the journey rub with salt. An old woodsman's trick is to sun-bake for a *few minutes*, until the skin is dried stiff, and then keep from the sun and wet. In this state the fish are not handsome but remain fresh.

Cleaned and salted fish, wiped dry and folded individually in cloth, the whole bundle then sewn up in stout canvas or some other material, will keep a long time without ice. The eyes and gills must be removed. The split is made down the back.

Curing Fish

Split along the back, clean, and salt well. (It is better to let them lie in brine overnight.) Then lay upon racks over a heavy smudge, where they should remain for two days. This requires attention, and many fish are spoiled because no one remains in camp to keep the smudge going.

Preserving the Colour

Many are the laments that the beautiful colouring of our brook-trout fades within a short time after capture, but Mr. J. H. Keene tells us that, if each trout is wrapped separately in a sheet of tissue paper the moment it is killed, "it will keep for many hours as bright as if fresh from the water."

IN WINTER DREAMT, IN SPRING COME TRUE

DRAFT

Some of our northern brooks, and even lakelets, are enclosed with banks so overgrown with dense jungle that the use of the net, except in places where wading is practicable, is impossible. For such fishing a delicate rod should not be used, but a considerably stiffer one with a top strong enough to lift out any fish likely to be taken. For this work I have found the right thing to be a 6½-oz. wooden rod with a top cut down to about ⅔ its original length. The leader should not be over 4 or 5 feet long, as it is often awkward to have the fly farther than that from the tip in certain brush-overhung pools, where the rod must be thrust through narrow openings in the foliage. Acquire the habit of looking behind you before every cast, to avoid being "hung up." **Bush Fishing**

In fishing a wooded stream there are two ways of carrying the mounted rod, butt foremost and tip foremost. Of these either will do if the bushes are not thick, but in dense jungle carry the tip pointed ahead, as by the other method one's flies are constantly being caught in the foliage. If the tip points ahead one can aim it so that it will avoid the danger points. But be very careful or you will run your tip against a tree, and then *vale* top! The more flies one uses the more annoying is a walk through thick bush. In case one has to walk a quarter of a mile or more it is generally economy of time and temper to take down the rod. **Carrying the Rod**

When "hung up" in a lofty branch subdue your rising temper at once, and give a little dry twitch, *very light*, just to ascertain how strongly the hook

is fixed, as often such a twitch will result in freeing the hook. If fast do not jerk frantically, but coolly diagnose the situation. There are several things to do. If you possess a "releaser," of which there are several on the market, attach it to the tip of your rod and cut the branch just below the imprisoned hook. If too high or in too large a branch climb the tree, or bend down the branch, or lop it off with a hatchet, or cut the tree down, if small. If you decide to sacrifice the fly, pull steadily on the line until something parts, and try to do it smilingly. Above all do not jerk the rod or the top will go, especially if of solid wood.

Getting "Hung Up"

Books

H. P. Wells: *Fly-Rods and Fly-Tackle*; *Salmon and Trout*, in the American Sportsman's Library; *Fly-Fishing and Fly-Tackle*, by J. H. Keene; L. Rhead: *The Speckled Brook Trout*; Orvis and Cheney: *Fishing with the Fly;* Mary Orvis Marbury: *Favorite Flies and Their History;* Edward A. Samuels: *With Fly-Rod and Camera*; Charles Bradford: *The Angler's Guide.*

There are legions of charming books on trout-fishing, but most are more concerned with the picturesque side of the sport than the technical.

DRY-FLY FISHING

The dry-fly is an exact imitation of some natural insect, fashioned as truly like the original as the most experienced and delicate-handed masters of the art of fly-tying can make it, except for the hook, which is a wee sma' thing, hardly ever larger than our No. 12 and often much smaller. Its body is made of cork or straw to make it buoyant, and, attached to

a leader of almost invisible delicacy, it is allowed to fall upon the water in, or a few feet above, the ring made by a rising trout and float down over the spot with the current, which necessarily must be gentle. The idea, of course, is not a novel one, but within a dozen years or thereabouts a distinct school of dry-fly anglers has arisen in England, the adherents of which are almost fanatical in their devotion to it, and would rather not fish than use other methods, which, it must be confessed, are founded upon the highest sportsmanship, although over-narrow in their application.

FIG. 57.—English Dry-Flies; Sedge and Gnat

The first great difference between the wet- and the dry-fly angler is that the former holds it a part of his skill to discover the likely places where the big ones are waiting, while his "purist" brother never casts his fly (always a single one) until he sees a rising fish. He may discover a dozen in the stream but, if they be not feeding, he must wait until they do. As this method of angling is practised for the most part on the clear, quiet chalk streams of England, where the fish are "educated" and the limpidity of the water allows them to see the angler easily, recourse is had to stalking the trout, *i. e.*, approaching under cover as much as possible, and even on hands and knees or crawling. Arriving within range of the ring made by the rising fish the line is switched a number of times through the air until the proper length has been drawn from the reel. This is in order that no false cast shall be made, but the fly fall in the right spot the very first time. All must be

clean, delicate and deliberate. If the fish fails to notice the fly, which of course has been chosen to imitate the flies actually on the water at the moment, another fly is tried after one or two further casts.

It was inevitable that American fishermen should wish to transfer to their own waters this highest development of the art of angling, and many of us have practised it here as we were taught on the Itchen or the Test, but, so far as I have been able to gather, with indifferent success, at least in the waters of the north woods. The reason for this lies in the fact that *fontinalis*, except in preserved ponds, disdains dead bait. I have frequently, after faithfully allowing my dry-fly to float down over the fish without success, resorted to using the same fly as if it were a Professor or a Silver-Doctor and at once captured my fish. Another reason may be that hitherto Americans have not been able to purchase dry-flies tied in imitation of American insects, but have been obliged to be content with English importations—a state of affairs hardly creditable to our tackle-dealers.

Books

F. Halford's *Dry Fly Fishing* and *Floating Flies;* Sir Edward Grey's *Fly Fishing;* G. Dewar's *Book of the Dry Fly;* Sidney Buxton's *Shooting and Fishing.*

BAIT-FISHING FOR TROUT

Tackle

The rod for bait-fishing may be from 9 to 10 feet long and have the reel-seat either below or above the handle. Split-bamboo is excellent, but, as the top must be strong enough to "derrick out" the fish occasionally without a net, I

prefer a wooden fly-rod the top of which has been cut down to two thirds its original length. This will throw a line far enough and can be used as a fly-rod for bush-fishing. Any reel will do, the handle of which does not protrude far enough to foul the line. It need not be large, as few very long casts will be necessary. An enamelled line is best, as it tangles less easily. Hooks are a matter of taste. Long-shanked ones are best for worm-fishing and they should have gut snells. The sneck style is good for worm. Nos. 8 and 10 are the right sizes. Buy best quality hooks, and if your hooks must have a weakness let them rather bend than break, for then they can be recovered from snag or tree and be put in commission again. A small swivel sinker is sometimes used in deep, swift water, but usually one or two split-shot suffice, and often, perhaps mostly, no sinker at all need be used, as in quick water the trout feed near the surface. The best bait is the old reliable angleworm, scornfully dubbed the "garden-hackle" by the fly-fisherman. The supply should never be kept in dirt, but in clean moss,which brightens and toughens the worms, and moss should also be placed in the pocket bait-box of tin, the best pattern being the rounded boxes that have slots for the belt.

Grubs of many kinds and several natural flies form good bait, and so do small pieces of trout or perch, especially a narrow strip including the bright belly-fin, from which the celebrated north woods fly, the Parmachenee Belle, was imitated by Mr. Wells. Minnows are excellent bait in large streams and lakes. They are kept in minnow-pails, several kinds of which are on the market. In capturing a supply of

minnows, nets may be employed, or, better still, the Orvis minnow-trap ($3), which, baited with cracker-crumbs, is set in the brook in the evening to be taken out filled with live minnows in the morning. Another trap, of wire, costs $1.50. The hook is passed through the back near the dorsal fin. The minnow dies slowly and is good so long as it wriggles. It is a cruel sport and I sincerely hope you will have none of it.

Methods

Whatever the bait, drop it into the most likely spots with as little commotion as possible, being careful to cast no shadows upon the water, and to show yourself as little as may be. In spring the fish will be found near the surface and no sinker is necessary, the bait swaying about in the ripples. Later, when the weather gets hot, deep fishing in the pools will be more productive. Fish every likely place and fish it thoroughly. As a general rule the bait is kept moving, even if only slightly. The fly-fisherman must entice the fish to the very surface, but a bait-fisher can seek out his quarry in its very lair, and for this reason, so the common belief runs, the very biggest old whoppers are more likely to fall a prey to bait. When you see or feel a bite let the fish have the bait for the fraction of a second before striking, but not too long or you may have to cut or tear the hook out of his gullet. This disgusting necessity, as well as the handling of dirty worms, is not necessary in fly-fishing.

Trolling

Trolling for brook-trout may be done with phantoms of small size or with bright-coloured flies. It is rather unsportsmanlike and fortunately results generally in meagre catches.

I feel some compunction in mentioning bait-fishing for brook-trout, believing as I do that fly-fishing is not only a far more artistic and enjoyable sport, but also one that can be indulged at any time and place that bait-fishing is practised, the exceptions being very few. I therefore say to the novice-angler, do not take up bait-fishing for trout, at least not at first. I am glad to place on record the fact that I have never met a bait-fisherman who, having once given fly-fishing a fair trial, ever returned to the coarser sport as a practice.

Bait vs. Fly

Even the little meadow streamlets where the fly is almost never used can be fished and fished well with it, as I have often proved to my own satisfaction, midge-flies on gossamer leaders being used. There are, of course, pools so encompassed with bushes and underbrush that the manipulation of a fly is impossible, but many of these may still be fished by the employment of some legitimate ruse, such as floating the fly down from above. I have even seen a fly so floated down under underhanging trees on a piece of bark, and spilled into the water at the proper spot, to be dragged back to the resourceful fisherman together with a finny prize. In fly-fishing there is no dirty bait to handle and renew every minute, the trout is hooked through the nerveless lips with no consequent pain, the pleasure of casting far and delicately is ours, as well as the wonderful joy of seeing the whole process of the rise and the hooking.

President Cleveland (my ideal in many ways) has had his fling at the affectations and the pretensions of the fly-fisherman, and doubtless these exist, but he may be assured that our joy in our art, and our

conviction that it is in many ways superior to bait-fishing are founded upon no affectation whatever.

LAKE-TROUT

The "Great Lake-Trout" (*Cristivomer namaycush*), called also in different parts of the north woods region Togue, Lunge, Siscowet, Forked-Tail, etc., is the largest of the charrs, growing to a weight of nearly 100 lbs., though the average will be about 6 or 7 lbs., a very large one weighing 15 to 20 lbs. It is easily recognised by its greyish (light or dark) colouring, the vermicular markings on its back, the forked tail, long head, and the toothed ridge on the roof of its mouth (Latin *crista*, crest, and *vomer*, vomer).

It can be taken with large flies if found in the proper water, for example at the mouths of rivers or on ledges in lakes. This, however, is very seldom the lot of fishermen, and recourse is usually had to trolling, which in spring, when the trout comes to the surface, is done with a long cotton or braided silk line, a light sinker, and a spoon with a single, or two single, hooks. The reel should be a multiplier, and the rod a stout and short one. A dead minnow attached to a snell or wire with one or two hooks is an excellent lure in spring. Summer trolling is usually done with a sinker weighing from a quarter up to a full pound, according to the depth of the lake and the character of the bottom, a strong twisted leader, and a shiner impaled upon some kind of gang or spinner. Nine hooks in clusters of three are not uncommon, but are anathema in the real sportsman's eyes. The legitimate contrivance has a lip-hook and a single larger hook at the minnow's tail. The sinker is often

suspended on a separate short line, weaker than the trolling-line, so that, if it gets caught on the bottom, it will break first. The rod should be a regular trolling-rod. There is little sport in deep trolling, as the heavy sinker and long line give even a strong fish little chance to display his gameness and he is generally exhausted before he reaches the surface. Still-fishing for lake-trout is a common practice, and is done at a baited buoy, pieces of meat and other feed being sunk round the buoy daily. A heavy sinker is used on a hand-line, with a dead minnow for a lure, it being kept in motion by movements of the hand.

SEA-TROUT

Europe possesses a real sea-trout, a species all by itself, the *Salmo trutta*, but the fish dubbed sea-trout on this side of the Atlantic, the familiar "salter," is nothing more nor less than our dear old friend the brook-trout, which, more enterprising than his brothers, periodically descends into the ocean, probably for the sake of better feed. Here he waxes exceeding big, and his pristine bright colouring becomes so silvered over that up till a few years ago he was suspected of being, like his British namesake, a separate species.

The sea-trout run into the Long Island streams about the beginning of May, during which month they also appear in southern Massachusetts and in Nova Scotia, particularly on the southern coast of the latter province, where the Jordan and other streams abound in them. A little later they appear in New Brunswick, Quebec and Newfoundland, the Bay Chaleur in New Brunswick being famous for

them, though Newfoundland offers very fine sea-trout fishing.

It is the general consensus of opinion that, pound for pound, the sea-trout is gamier than his stay-at-home brother, and he grows larger. The best rod to use in angling for him is a strong trout fly-rod, say 10 to 10½ feet long and weighing about 6 or 7 ounces, or even a trifle more. The leader should be stout. Bright-coloured flies, like the Parmachenee Belle, Silver-Doctor, White-and-Scarlet Ibis, Dr. Breck, etc. on number 4 and 6 hooks are generally used. Sea-trout are most readily found in pools situated at the head of tide-water, and the most favourable time is at young flood or young ebb tide. They lie, like salmon, at the tail of the pools. Canoe-fishing is usual.

Read *Sea-Trout Fishing*, by Arthur P. Silver, in *Outing* for August, 1907.

OTHER TROUT IN EASTERN WATERS

It is a matter of the deepest regret that, on account of the denuding of mother earth of her stately trees by the inexorable demands of what we are pleased to call civilisation, the waters of a great number of our streams and lakes have already become too warm for our native charr, the peerless *fontinalis*, or brook-trout. More and more, therefore, must we look about for a satisfactory substitute, and fortunately the fish-culturists are able to supply us with other varieties of trout, which thrive in water several degrees too torrid for our native fish, and which are strong and gamey fish and grow to a larger size, though we will never admit their equality with

our brook-trout. The most important of these are the Western rainbow trout (*Salmo irideus*) and the European brown trout (*Salmo fario*). Which of these two is the best colonist has not yet been decided, as experiments with the rainbow have as yet been too infrequent and sporadic to found a judgment upon. The brown trout, the classic fish of Great Britain and Germany, has been very successfully planted in many American streams and seems to thrive finely, even in streams the banks of which have been quite denuded of trees. The fish has been praised very highly by those who have angled for it here, and no doubt it is a good fighter. My own opinion, however, founded on some years' experience of both fish in their native waters, is that the brown trout must yield the palm for gameness to our own *fontinalis*, while for beauty our charr is peerless. It is not unlikely that the brown trout, when acclimated in the somewhat cooler waters of this country, becomes a harder fighter than in Europe. We shall be obliged to learn more and more about it as the axeman and sawyer ply their deadly trade year by year.

THE GRAYLING

The American Grayling (*Thymallus tricolor*), an offshoot of the salmon family, was probably abundant formerly in many parts of the continent, but is now found in a few regions of the middle Northwest, especially in the streams of Michigan. It is a handsome and gamey fish which readily takes the fly, and is of a delicious flavour. Unlike other members of the *salmonidæ*, the grayling spawns in spring. It lives less in tumultuous water than in the deeper

parts of the stream, and rises abruptly to the lure. Three quarters of a pound is a good average weight according to Norris. It has a slimmer body than the trout, a small head with prominent eyes, a forked tail, and, its most distinguishing mark, the large dorsal fin, which shimmers in the light with iridescent colors.

The Montana Grayling (*Thymallus montanus*) is found only in the tributaries of the Missouri River above the Great Falls. It is similar in colouring to the Michigan fish, but is slenderer and has larger scales.

Light trout-tackle may be used, with very small flies. Dr. Henshall recommends the following patterns, but says that a red tag should replace the usual tail and that the wings should be narrow and split: Professor, Queen-of-the-Water, Oconomowoc, Lord-Baltimore, Coachman, Henshall and Grizzly-King. Two flies of different shades should be used at once. The flies are allowed to sink and then retrieved.

Read J. A. Henshall's *Bass, Pike, Perch. and Others.*

SALMON FISHING

There are several varieties of Pacific Ocean salmon, all distinct from the Atlantic species, but, as they do not commonly take the fly, they are of little interest to the north woods angler. The Atlantic salmon (*Salmo salar*), which frequents the streams of eastern Canada and Newfoundland, as well as north-western Europe, is generally acknowledged to be the king of game fish, both on account of his size and his fighting

qualities. Unfortunately he has many powerful enemies, the greed of the net-fishermen at the river-mouths, the enterprise of the pulp and lumber dealers, and the failure of many local governments to prevent netting and to provide fish-ladders, so that the salmon can ascend mill-dam falls to reach their spawning-beds. Thus such rivers as the Hudson, Connecticut, and Merrimac, once good salmon streams, now know the grand fish no more, and even the great rivers of Maine are fast being abandoned by them. The progress of industry cannot be arrested.

The magnificent streams which flow into the St. Lawrence Gulf and River produce the largest salmon on this side of the Atlantic—perhaps, if an average be struck, in the world; but practically every good stream in the province of Quebec, in which nearly all the best of them are situated, is rented by the government to private clubs or individuals, for annual sums ranging from a few hundreds to many thousands of dollars, and the ordinary mortal who is not fortunate enough to receive an invitation to fish these choice waters, the famous Restigouche and its tributaries, the Cascapedia, the Moisie, York, St. Marguerite, etc., must repair to the free fishing of Newfoundland (no license fee), where salmon are very abundant, though smaller than in Canada. The La Have and Port Medway Rivers in Nova Scotia and the Magaree River in Cape Breton are also fair salmon waters and have hitherto been free, but private clubs have already begun to sequester some of the best pools. The fish run very early in Nova Scotia, there being little salmon fishing after the first days of June, though grilse may be taken. The Canadian license-fee for fishermen who are not

British subjects is a farce in Nova Scotia and in some other provinces, not being enforced.

Newfoundland is the paradise of the salmon angler of moderate means. Its streams are best reached from Sidney, N. S., or St. John's, Newf. The Reid Newfoundland Company of St. John's furnishes folders containing exact information about fishing, accommodations, etc. So many people fish these streams nowadays that it is usually easy to find some acquaintance who can furnish first-hand references and information. Labrador promises fine salmon-fishing, but is hard to reach (by steamer from St. John's).

Habits

Salmon spawn in late autumn on gravelly shallows in the streams where they were born, the eggs hatching in from 80 to 100 days, according to temperature. The fry (length at six weeks about 1¾ inches) remain in the parent stream for one, two, or even three years. At first they are distinguished by vertical bluish bars on their sides and are called *parr*. They then lose these bars, turn silvery, and are called *smolt*. In case this happens early in the spring the smolt go down to the sea and remain there not longer than ten weeks, returning to their home stream as *grilse*, with an average increase in weight of from three to six pounds in this short time. These grilse go back to the sea the last of autumn and are most likely to reascend the home stream the next spring as "full-fledged" *salmon*, with another considerable increase in weight. If, however, a smolt should remain nine or ten months in the sea instead of as many weeks, it will skip the grilse state and return the next spring as a small salmon. After

spawning, the fish, now played-out and bedraggled *kelts*, return to the salt water in February or March. The above general facts, taken from C. Pennell, are subject to unimportant exceptions. To distinguish between a salmon and a grilse is difficult for a beginner. Beyond the fact that grilse are usually (though not always) smaller than salmon, it may be said that the scales of a grilse are smaller, while the fins are larger and longer than those of a salmon of like size. The salmon's scales are less easily rubbed off and its tail is much less forked.

Size

The average grilse weighs a trifle over 3 pounds, though individuals may run to twice that weight. An adult *Salmo salar* may weigh anything from 3 to 55 pounds, with an occasional giant heavier still. The average in the great New Brunswick rivers is between 15 and 30 pounds, 46 pounds being about the limit. In other districts the fish run considerably smaller, 20 pounds being heavy, while the average is under 15 pounds.

Dress

Unless it be for a pair of high mackintosh waders or wading-stockings, there is no essential difference between the dress of the salmon-fisherman and that of the camper, though on many of the more fashionable salmon rivers somewhat more elegance is often affected, even the "boiled shirt" being in evidence. Mornings and evenings it is apt to be cold, and one may with profit accept the advice of Mr. Wells, to "clothe one's self like an onion, and be prepared to peel layer after layer as the day advances." As salmon pools are generally

fished from permanent camps, high waders, not to be recommended for wilderness journeys, may be worn.

Waders

They should come up above the waist, or, better still, to the armpits. Mackintosh trousers with feet (but without shoes attached), and worn inside heavy fishing-brogues, are better than long boots, as they can be turned inside out and dried easily.[1] At least two pairs of thick woollen socks should be worn with them. Waders should be dried often or they will rot. Hang them in the sun or fill them with heated pebbles or grain of some kind. Neither waders nor leather shoes should ever be dried by the fire. Several firms now make very high waterproof leather boots, which are more comfortable than mackintosh and far more durable.

Oilskins

A suit of yachting oilskins will always be found a great boon, or, if waders are worn, an oilskin coat long enough to cover the tops. If the fishing is from a canoe the long rubber fishing-shirt is not bad.

Don't forget fly-dope and head-net (see *Personal Outfit*). Thick gloves with the ends of the fingers cut off are excellent to foil the flies. They should be at least two sizes too large for ordinary wear. Mr. Wells recommends that they be worn with linen gauntlets provided with elastic.

Insects

TACKLE

For the larger American streams the rod need

[1] If rubber or mackintosh high boots are worn, the new kind, with hobnailed leather soles, should be chosen, as rubber is too tender for rocky country.

never exceed 15½ feet in length, while for the smaller rivers, or waters where the salmon seldom run over 23 pounds, 14 feet will be found ample. Do not be persuaded to use (unless it be for tournament casting) an English or Scottish "weaver's beam" of 18 or 20 feet. There is no space here to give the arguments for and against the light salmon-rod, but they can be found in Mr. Wells's *American Salmon-Fisherman*, and they make out an unanswerable case for the light rod. Of course if your only object is to get out as much line as possible, and your physical powers are equal to a very heavy rod, why, then get one. Mr. Enright's cast of 152 feet was made with a 20-foot greenheart, but it is significant that American casting rules make no provision for a rod over 18 feet in length, at least in 1907.

Rods

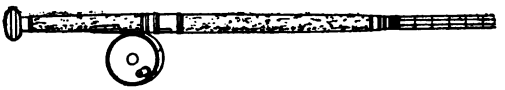

FIG. 58.—British Salmon-Rod Handle

Both split-bamboo and greenheart are excellent materials for salmon-rods, but bamboo is lighter and livelier in action. Expense must be no object when buying a salmon-rod, as the best is none too good. If, however, you do not care to pay $45 or more for an American split-bamboo rod, $25 will buy a good, though heavy, greenheart. If the fishing is to be for grilse only, the rod need not be longer than 11 feet, and a powerful trout-rod will do nearly as well.

Grilse-rods

British rods are generally capped at the butt with

flat wooden, or, better, soft rubber buttons, which can be more comfortably braced against the body than our metal caps. If the latter are used, or if big fish are likely to be killed, a leathern butt-rest, worn with a strap round the waist, should be used, as it greatly relieves the muscles when playing a heavy fish.

Butt-rest

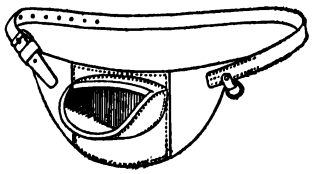

FIG. 59.—Butt-Rest

The first guide and the tip of a salmon-rod are generally of agate.

The reel, always single-action, should properly balance the rod, should be about 1¾ inches in the width of the winding-barrel, and be provided with a tension-screw (on the opposite side from the handle) or adjustable drag, by which the running can be made harder if necessary. Generally, of course, the reel should work with the utmost smoothness and ease, the drag being applied only in the stress of battle. For large streams the capacity of the reel should be 120 yards. American salmon-reels cost from $15 to $25; Malloch's Scottish reels cost about $10 (bought in Canada); Hardy's the same. Each reel should have a stout leathern case.

Reels

Salmon-lines of enamelled silk are now made in many varieties. A taper is usually preferred. As the line should be at least 100 yards long and would cost, if entirely of silk, in the neighbourhood of $12.00, it is usual to splice a 60- or 40-yard salmon-line to 80 or 100 yards of Cuttyhunk linen line, No. 15, which is very strong, and which does not come into

Lines

action except when the fish is hooked and has run quite far, so that it does not interfere with casting. The splicing should be done in a tackle-shop unless the angler is an expert in such matters. (See Wells's *American Salmon-Fisherman.*) On smaller streams 60 yards will generally be found enough, without piecing with linen. A bodkin of bone or ivory is a good thing to unravel knots and tangles in the line. The exact size of line is impossible to give, as it must fit the rod, a heavy rod requiring a larger size, so as to bring out all its power, while a light rod cannot readily take much length of heavy line from the water.

Leaders

The classic length of the leader, or casting-line, is 9 feet, tapered, and, as it should be of single gut, it is absolutely necessary that it be above reproach in quality, for it must always remain the weakest part of the tackle, and a time is likely to come when one must "throw *finesse* to the winds and make a direct issue between the strength of the fish and that of one's tackle." Therefore, unless you can afford to buy the best heavy gut ($10.00 to $12.00 per 100 strands in New York) and tie your own casting-lines, it is well to purchase only of the most reliable dealers. For medium weight, sufficient for Newfoundland or Nova Scotia, you will pay $1.50, for heavy $2.00, while very heavy single-gut leaders command as much as $3.00 and $3.50. Salmon-leaders should be tested to 10 pounds. On bright days unstained gut is the best; on dark days mist colour is said to be less conspicuous, though I rather doubt this.

Why salmon rise to the fly, since they eat almost

nothing in fresh water, is one of those things "no fellow can tell." Volumes have been written on the subject, which is complicated by the extraordinary vagaries of the fish, that have been hooked with a piece of caribou-skin, a glove-thumb, a mouse, a silver coin, a live butterfly, and many other singular baits, all attached, of course, to hooks. At the present time it is commonly believed that the flies are taken for food, since it has been proved that salmon do eat, though most sparingly, in fresh water. It may be that the fish rise more from instinctive habit than from real hunger; perhaps also partly from jealousy, to prevent some other fish from mouthing a delicacy, somewhat as a dog will eat, even when already satisfied, so long as a rival stands ready to seize what remains.

Flies

Bright-coloured flies prove most attractive to salmon, and nearly all the favourites on this side of the Atlantic are of that description. Among the most successful may be mentioned: Silver-Doctor, Jock-Scott, Durham-Ranger, Silver-Grey, Butcher, Black-Dose, Fiery-Brown, Black-Fairy, Dusty-Miller, Popham, all resplendent in tinsel and bright feathers. Two or three sizes of each fly chosen should be in your fly-book or box. The favourite hook seems now to be the O'Shaughnessy, with Limerick or Sproat for second choice. Double hooks are very much used, especially in the smaller sizes, but the correct salmon-angler rather despises them as unsportsmanlike. Salmon-flies are provided with twisted gut loops, and

FIG. 60.—Salmon-Fly

are attached to the leader by one of the knots described above under *Trout-fly Tackle.*

For storing flies, as well as for the supply carried on the person, special moth-proof boxes and cases may be had of the dealers. A metal pocket box, holding five dozen flies, costs in the neighbourhood of $4.00, while the stronger and more elaborate cases run in price from $12.00 to $25.00.

Though grilse and salmon up to ten pounds weight may be landed in the largest size linen nets, the correct thing is to gaff them, and in the purchase of the necessary instrument the beginner has no choice but to trust to his dealer, and this in spite of Mr. Wells's dictum that he had never seen a really good gaff in a shop. That was, however,

Gaff

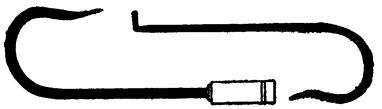

FIG. 61.—Salmon-Gaffs

in 1887, and his strictures have probably borne fruit. The chief characteristics, as he gives them, are: hook strong and stiff; depth of point must exceed width of hook at widest part (measuring inside the curve) by $\frac{1}{4}$ to $\frac{3}{8}$ inch; wire not too thin nor clumsily thick; point long, keen, and conical; gaff, except point, neither polished nor nickel-plated; should be lashed to improvised handle cut on the bank rather than screwed to a ready-made handle; point side of gaff straight. When the handle is cut on the fishing-ground one side is flattened at one end and the spur of the gaff driven into it,

the gaff then being firmly bound to the handle with twine. When leaving the stream the twine is cut and the handle thrown away. The dimensions of an "able-bodied" gaff are as follows: bottom of hook to spur (on a straight line) 1 foot; width of hook opposite point 3 inches (or a trifle less); width of hook at widest point $3\frac{1}{4}$ inches; depth of hook (straight across from point to shank) $3\frac{9}{16}$ inches. All measurements are on the inside curves. Such a gaff will land anything, great or small. Plain gaffs without handles cost less than half a dollar. They are also made with a screw-end to fit the "Harrimac" landing-net handle. The gaffing of the fish is considered to be an essential part of the killing of a salmon (one never *catches* a salmon!), and a plain gaff is therefore the only weapon which the "purists" will allow in the hands of the gaffer. But nothing is so annoying, to use the very mildest of terms, as to play a big fish sucessfully and bring it to gaff, only to have it missed, and very likely lost, by an awkward gaffer; and for this reason many a good salmon-angler, who has repeatedly suffered this catastrophe, has taken to the automatic gaffs, when going among untried guides. The best of them is the Marble ($2.00), a deadly weapon even in the hands of a duffer. Order one not nickeled. Though perhaps rather unsportsmanlike, one must remember that the angler has actually done his part in bringing the fish within reach of the gaffer, and the punishment certainly does "not fit the crime" when he loses it through no fault of his own. The "Marble" should be handled carefully, as it closes easily.

The principles of casting are identical with those

of manipulating trout-rods. The line is thrown back, though not so far as to allow the fly to touch the water, a pause is made while the line straightens out behind, and the forward cast completes the operation. (See *Casting the Fly*.) There is, however, one important difference: with the trout-rod the balance, or centre of motion, lies within the hand holding the rod, while with the two-handed salmon-rod the balance lies in the lower hand, which grasps the butt. One must consider this hand the pivot upon which the rod swings, hold it steady, as if it were merely a socket, and manage the rod with the upper hand. Above all things practise with each hand alternately held above and below, so that a cast over the right shoulder will be as easy as one over the left. Ambidexterity is as convenient, nay, as necessary for the angler as for the axeman or the canoeist.

Casting

Fig. 62.—Top of Back-Cast.

The underhand switch-cast, which has many variations and names, is made by switching the line, not over the angler's head, but off to one side; then, by a smart forward and upward movement, the fly is flung up and out, following the motion imparted by the curve of the line. Such casts are resorted to when some natural object interferes with a proper overhead cast. At the end of a cast directly into the wind, the tip is brought sharply down nearly to the water. (See Figure 63.)

Fishing the Pool

A salmon "pool," unlike that deep and serene haunt of the trout at the foot of some fall, is generally nothing more than a stretch of clear water from 3 to 10 feet deep, with a gravelly bottom and a 3- or 4-mile current; in other words a kind of quiet rapid. It is fished either from the bank or from a canoe or boat anchored amidstream. If from the bank, the angler, having consulted his guide as to where the fish usually lie, takes his station near the upper end of the pool, and casts his fly across the current. The rod is held quietly in a nearly horizontal position, while the fly is carried down-stream in the segment of a circle, until the line is nearly at right angles with the rod, which is then moved so that it points down-stream at an angle of about 45 degrees with the bank. The fly is carried on down until it passes the end of the rod a few degrees, when it is retrieved for another cast, which may be made over the same water, or with some 6 or 8 feet more line. The line is lengthened gradually with successive casts until the limit of the angler's casting powers is reached or a rise rewards his efforts. If unrewarded he moves the length of a cast downstream and resumes operations.

FIG. 63.—Finish of Wind-Cast

From a canoe the water is covered by casts towards

each side. It will be seen that, in salmon-fishing, the rod is more quiescent than in angling for other *salmonidæ*, the current doing most of the work. If the line, on account of a particularly strong current, bellies badly, so that it runs ahead of the fly, one must cast more obliquely down-stream; or the line may be given a flip up-stream just as the fly strikes the water, by switching the tip of the rod in that direction. **From a Canoe**

Should the fish rise but refuse to take the fly do not cast again at the exact spot, but some distance beyond, so that the fly shall swing round and over it.

Displaying is the art of offering or showing the fly to the fish over as large a radius as possible, and in such a manner that line and leader are invisible. The fly itself is submerged, and many anglers do not attempt to aid the current in giving it a natural motion. The majority, however, endeavour to do this by vibrating the tip up and down through the space of a foot, the result being that the wings and hackle of the fly alternately close and open with the successive jerks, and, so it is thought, a lifelike motion is imparted. **Displaying the Fly**

Salmon are much more deliberate in their movements than trout, and, while the latter will seize a fly and spit it out again almost in an instant, the salmon approaches and takes it in a more stately manner, and is apt to carry it down with him to his lair before investigating its precise character. From this it follows that the angler must not strike too soon when he sees the warning boil of the water near his fly; in fact it will be better not to **Striking**

strike at all, and many fishermen follow this precept exclusively, asserting that the fish and the resistance of the heavy line will do the hooking quite effectually, and that nothing should be done until a perceptible jerk on the tip signals that the hook has gone home. Even then some do not strike when heavy fish are in the pool, but it is generally a good plan to do so, in order to imbed the hook more firmly. As a rule keep the hands off the line, as a sudden strike when it is straightened out may part the leader.

Changing the Fly

The enthusiastic trout often misses the fly in its zeal, but when the water boils in a salmon-pool and the fly remains untouched you may be fairly sure that there is something wrong, and (especially if this occurs more than once) it is probably the fly. If such a suspicion arises work the fly about a little, letting it sink and then pulling it in. If this has no effect reel in and change the fly to a smaller size of the same pattern, wait five or ten minutes, and try again over the same spot. If the exact distance is to be insured it is better not to reel in, but to pull the line through the rings and let the coils lie in the bottom of the canoe. When convinced that the pattern of fly is not wanted by the fish, change to some quite different variety. In a word, experiment until success is attained. In all cases wait a few minutes before trying the same spot again.

For a few moments a hooked salmon does not seem to appreciate his position, but this is only the calm before the storm, for suddenly the line begins to go and the reel to sing with a *crescendo* that rises

to *prestissimo* and *fortissimo agitato*. This is one of the soul-stirring moments of the battle, and rivals the excitement of landing after a fifty-foot skee-jump or turning a sharp corner in a racing-car at a mile a minute. One wonders whether the fish is ever going to stop, and visions of a line run out and snapped off the reel arise like ogres. But he usually does pause before such a catastrophe occurs, and soars majestically into the air at the end of the rush, generally giving the angler time to reel in a good deal of line before dashing off for another rush and leap. The battle is then on and the problem is to tire out the fish and bring him to gaff before he can break away, either by sheer strength or by entangling the line in some natural obstruction. The rule is to make haste slowly, for it has been calculated that no good fish can be killed safely in less than a minute for every pound of its weight. When the salmon leaps from the water the old rule was to drop the tip of the rod in order to reduce the strain on the tackle, but Mr. Wells has proved that this is a fallacy, since such relief cannot possibly be communicated to the other end of the long, heavy line in the very short space of time occupied by the fish in leaping. The rule is, therefore, to keep a taut line at all times. If the fish doubles back, bellying the line, reel in as fast as possible. In a word, never allow slack line. If he sulks and jigs, *i. e.* tugs at the line with a succession of short, sharp jerks, simply wait for him to finish this disconcerting manœuvre. If he threatens to run out all your line, which would be fatal, follow him with the canoe or on foot, as the case may be. There are lurid tales of fishermen chasing down-stream for miles after a

Playing the Fish

runaway salmon of uncommon weight and prowess, but these may be somewhat exaggerated. Experience is the best teacher, and when you have played twenty salmon, and lost a certain percentage of them, you will know more about the art than I could impart in twenty chapters.

Gaffing

When your fish is thoroughly *sick*, and shows his sides from time to time, draw him gradually up to the spot where the *motionless* gaffer waits. The salmon may come to life several times at sight of his new enemy, but at last the gaff is pushed deftly under the fish, and, with a quick upward movement, the quarry is impaled upon it, dragged up on the shore or into the canoe, and knocked on the head as soon as may be.

Books

H. P. Wells: *The American Salmon-Fisherman; Salmon and Trout*, in The American Sportsman's Library; Chas. Hallock: *Salmon-fishing.*

FRESH-WATER SALMON

Hornaday and others distinguish two chief varieties of salmon living in fresh water, the Ouananiche (pronounced *Wanna-neesh'*) (*Salmo ouananiche*) and the Sebago Salmon (*Salmo sebago*) of Maine, though scientists are as yet by no means agreed as to the difference between these or between them and the *Salmo salar*, which divides its existence between salt and fresh water. It may be quite a matter of environment. Both are called land-locked salmon, though only the Maine fish seems entitled to the name, as the Ouananiche has access to salt water and frequently does descend to it.

THE OUANANICHE

Mr. Hornaday speaks of the Ouananiche as a "fierce-fighting fresh-water understudy of the Atlantic salmon. . . . When first taken from the water, it has a beautiful peacock-blue colour which disappears at death, changing to the light-grey back and sides and silvery belly of the Salmon. . . . The Ouananiche is a fish which loves rapids and rushing water as a mountain sheep loves crags and precipices. Because of the strenuous life it leads, it is beyond doubt the most vigorous and athletic fish that inhabits our waters." This dictum will be generally subscribed to by most fishermen. Mr. Eugene McCarthy, in his *Familiar Fish*, thus characterises the Ouananiche:

> None of the fresh-water fish can equal its fighting powers, and, pound for pound, it will outfight even the salmon. Ouananiche are great smashers of rods and tackle, unless one understands how to play them, especially when they make their numerous high jumps from the water. It is not an exaggeration to state that these jumps will average at least five to six, and frequently will number ten to twelve feet. And such leaps! Two or three feet out of the water, often toward the fisherman, then a rush deep down, a pause, a succession of jerks that would seem to tear the hook loose, a wild rush of varying distance, and a run back, almost to the angler's feet. A fish weighing three and one-half or four pounds will make a fight lasting ten or fifteen minutes, often longer; and that means hard work for every moment for the fisherman.

The chief habitat of the Ouananiche is Lake St. John and its tributaries, in the Province of Quebec, and the Saguenay River, its outlet to the Gulf of

St. Lawrence; but many other waters of that region contain it, though less known.

The fish probably spawn partly in the lake and partly in the stream. They seem to be mostly in the lake in spring, descending into the rapid water about June. The spawning season is October. In the lakes they will almost never take the fly. Anatomically the fish differs in no respect from a small salmon, but the colouring is more brilliant. It feeds day by day throughout the year, and has a slimmer body and more powerful fins. The average weight is less than three pounds, though it grows to three times that. The expert angler of the Grande Décharge of the Saguenay takes him only on the fly.

Tackle

A heavy trout-rod, say of 10½ feet and 7 or 8 ounces will fill the bill, though some prefer a grilse-rod. The line will be size E, and the leader six feet long and of light salmon gut of the best quality. The usual thing is to use two flies, the upper one a yard from the tail. Sizes 6 and 4 are large enough, and the favourite varieties are Silver-Doctor, Jock-Scott, Popham, and in fact most of the best-known salmon patterns.

In the Saguenay the fishing is generally from a canoe, for the proper management of which in the difficult water two guides (French Canadians) are necessary. The casting is mostly not from the canoe, but from different points of vantage, where the angler lands. The fish are found in the rapids and especially in the foam-covered eddies, into the midst of which the flies are launched. When your fly is taken strike smartly, after which, if the fish is hooked, "look out for squalls!" He will plunge down, run up, leap

wildly, turn and rush and jig like an electrified grilse; in fact he may be treated like one. Keep a taut line always. Ouananiche are generally netted like trout.

THE SEBAGO SALMON

Those who have fished for both the Ouananiche and the Maine land-locked salmon are generally of the opinion that the former is the gamier fish, for the reason that it inhabits more strenuous waters. There are, of course, places in Maine where, either in the streams or fresh-run into the lakes, the fish are as hard fighters as their Canadian cousins. They are heavier, weighing from a pound up to 15 pounds, the average in Sebago Lake being over 8 pounds. In spring it may be taken with the fly, like its Quebec cousin, but later trolling with the minnow, phantom, etc., must be resorted to.

Bibliography

The Ouananiche and its Canadian Environment, by E. T. D. Chambers; *The Leaping Ouananiche and How to Catch It*, by Eugene McCarthy; *The Land of the Winanishe*, in the volume on *Angling* in the Out-of-Door Library (Scribner's); *Fly-fishing for Ouananiche*, by Louis Rhead, in *Outing* for July, 1906. It is a regrettable fact that many books on salmon-angling contain so little about the fresh-water salmon. The volume on *Salmon and Trout* in the American Sportsman's Library, for example, never so much as mentions the existence of the Ouananiche.

BLACK-BASS FISHING

There are two varieties of the black-bass, the

small-mouthed (*Micropterus dolomieu*) and the large-mouthed (*Micropterus salmoides*), the two fish being very similar in appearance, though the large-mouthed is not quite so slender and has the angle of the mouth reaching behind the eye. Its scales are also larger. Of the two the small-mouthed has the greater reputation as a game fish, though Dr. Henshall thinks this due to the fact that the small-mouth is oftener found in cool, clear waters than his cousin, and that, in the same water, there is no difference in their game qualities. Both fish are hard fighters, strong and resourceful, and will frequently leap from the water even on a slack line. The fact that the trout almost never leaps on a slack line has led bass-fishermen to claim the palm of gameness for their favourite. This claim has hardly been substantiated, though one may say that the black-bass possesses a little more of the bulldog nature than the more beautiful and aristocratic trout. The usual colour of the bass is a fine greenish bronze, though this may be dark or light.

Habits

The small-mouthed black-bass inhabits preferably clear and cool streams, as well as lakes and ponds fed by them or by springs. Hibernating at the bottom of lakes and streams, it emerges in early spring from its state of torpor and seeks its spawning bed in streams having sandy or gravelly bottoms about the month of May, the spawning season lasting till July, different fish spawning at different times, according to environment. The male fish works out a depression in the soil, in which the female deposits her eggs, which are then covered by the male milt. It takes but two

weeks, or even less, for the eggs to hatch, during which time the nest is guarded by both parent fish, unlike the trout, which neglects its nest after the eggs have been fructified. The male bass even watches over the hatched-out fry for several days after hatching. The fry attain a length of about an inch in a month and grow to six inches by autumn. A pound per year is about the normal rate of increase, and five pounds is a very large weight for a black-bass, though fish of nine and ten pounds have been taken.

FLY-FISHING

Tackle for Fly-fishing

The remarks upon rods for fly-fishing contained in the chapter on *Trout Fly-tackle* apply also to bass-rods, except that a rod under six ounces should not be used, the average bass fly-rod being an ounce or so heavier than that. It may be from 9 to 10½ feet in length. Split bamboo is best. The butt should be rather more stiffish than in a trout-rod. Lines and leaders are similar to those used for trout, though the leader need not be over six feet in length, but must be stout. Bass-flies are usually made with very large, flaring wings and in brilliant colours. Dr. Henshall thinks most of the stock flies too large and recommends the "largest trout flies, tied on hooks Nos. 4 to 6." Among the best patterns are the different hackles, the Coachman, Montreal, Professor, Grizzly-King, Jungle-Cock, King-of-the-Waters, etc. There are also the so-called buck-tail flies. Very few bass-flies bear any resemblance to living insects. The bass is a voracious feeder, resembling in his habits the gamey brook-trout of northern waters, and he evidently takes the fly not for some particular

insect known to him, but just for some kind of possible food, to be captured first and rejected if undesirable.

Morning and evening are the most favourable times, unless the day is overcast. Fish down-stream and observe the general rules laid down under trout-fishing. The flies (two, or sometimes three, are generally used at a time) are kept wriggling when on the surface, but are allowed to sink a foot or so from time to time. One must try every ruse, as the bass is as fickle as the trout, and the flies should be often changed until success attends. When a rise is seen or a tug felt strike like lightning, though not brutally, as the fish will, except in still water, probably have hooked himself, and it is chiefly a matter of setting the barb well in. Keep a taut line, and make the fish earn every inch he pulls out. Netting the bass is precisely similar to the same operation applied to trout.

OTHER METHODS

Dr. Henshall mentions as legitimate methods, aside from fly-fishing, for bass, casting with the live minnow, trolling, and still-fishing. He condemns trolling with a hand-line as unsportsmanlike, and also, by inference and failure even to mention them, all many-hooked contrivances, such as phantoms and minnow-gangs. It seems somewhat inconsistent, after taking this high and proper standpoint, that he should advocate the torture of a live minnow for the sake of sport. As the minnow is generally hooked through the nerveless lips, the biassed angler will bring forth the old argument that it is not hurt. Why

not go a step further and aver that the little fish hugely enjoys being jerked through air and water until insensibility befalls? The true sportsman has no place in his heart for mollycoddles, but the practice of such cruelty as this should disgust every right-minded being. Let the reader decide for himself.

Casting with Minnow

The minnow is hooked through both lips, or, when very small, under the dorsal fin, on a single snelled hook, size 1 to 2. A braided silk line, size H, is best and no leader can be used, since the lure must be pulled up close to the tip for the purpose of casting. The casting-rod, which has been developed during the past few years, is from 8 to 9 feet long and preferably of split bamboo (best quality up to $30.00; Orvis casting-rod, fine quality, $15.00). It has the reel-seat above the hand and weighs from 6 to 8 ounces. A still shorter variety, originating in the West, is from 4½ to 6 feet long. The reel must be a multiplier containing fifty or sixty yards of line and as light as possible. Very beautiful multiplying reels for bait-fishing have been made in this country, and particularly in the State of Kentucky, for more than half a century, and the Kentucky reels still maintain their reputation. The best of them (not all made in Kentucky) are expensive—Meek's No. 3, $28.00, No. 4, $30.00; "Talbot Special," $50.00 to $60.00 (with jewelled bearings); ordinary Talbot, $20.00; "Intrinsic," $15.00; Milam's, $20.00; J. vom Hofe (60 yards), $8.00. All these reels have click and drag. The Talbot is jewelled; all the others cost about $4.00 more for jewelling. Of course all makers turn out cheaper reels that are of good quality, but a multiplying reel should be a fine one or a very cheap one,

to throw aside after a short time. The best American reels last for many years. They should be kept in special leather cases and carefully cleaned and oiled. Very little oil should be used, and that of the best quality.

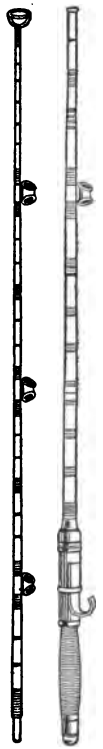

FIG. 64.—Two-piece Casting-Rod

Casting with the short bait-rod is an art which has only recently been developed. The regular overhead tournament cast for distance can be employed in throwing the minnow only very gingerly, since the delicate lips or skin of the fish would otherwise be torn out. With a frog or other tougher bait it is generally used. It is called casting from the reel, and is a Western development, like the short rod invented to perfect it. Two varieties, the *wrist-cast* and *body-cast*, are distinguished. For the wrist-cast the rod is held pointed at the spot where the lure is to alight; the reel (on top) is turned a little to the left and the thumb rests on the crossbar. The lure hangs about 18 inches from the agate tip. Raise the whole arm slowly over the shoulder, bending forearm and wrist backwards until the rod points a little towards the ground. Then cast the lure forward by a sharp, snappy jerk, remembering how, in your youth, you chucked a green apple from the end of a stick. The

FIG. 65.—One-piece Casting-Rod

body-cast is an effort to add to the strength of the arm, wrist, and hand that of the whole body, the arm being held more extended and the whole forward movement made more round-arm, somewhat as a cricket bowler delivers the ball. Added impetus is often got by a preliminary run. Casting with a longer rod is usually done more from one side to the other than overhead, in order to avoid the jerk that is likely to throw off the lure. Those who intend to devote themselves to bait-casting should secure Lou S. Darling's *Tournament Casting.*

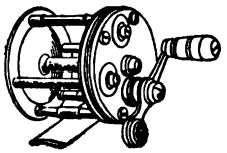

FIG. 66.—Casting-Reel

When the minnow strikes the water it is allowed to sink half way to the bottom and is then slowly reeled in. When it is seized by a bass do not strike, but let him have it for a few seconds even if he should start to run, but it takes some time for him to get it well into his mouth. When he seems to have it firmly (the angler can usually tell by the strong and steady pull, felt best by the thumb on the reel-spool), set the hook by a smart strike. The battle is then on and differs from that with a trout only when the bass leaps from the water, in which moment taut line should especially be avoided, though it is a grave question whether in so very short a time any movement of the angler's can be communicated to the other end of the line quickly enough to have any effect, one way or the other. With a very long line certainly not.

FIG. 67.—Casting-Spoon

Casting is also done with a small trolling-spoon with one hook, or two single hooks.

Trolling

Trolling is done from a slowly-moving canoe or boat along the edges of weeds, rocky ledges, or wherever bass are known to lie. A minnow or single-hooked trolling-spoon may be used, all three- or more-hooked contrivances being considered as worthy only of the pot-fisherman, who wishes to bring in a good string, however captured. A short trolling-rod should be used.

FIG. 68.—Trolling Top for Steel Rod

Still-fishing

Still-fishing from bank or boat is done with rod, line, leader, and dead bait, which may be worms, helgramites, crawfish or some other piscine delicacy. This should not be allowed to lie on the bottom, for which reason a float is usually employed. The most efficacious bait is a live minnow; let the hard-hearted use it if they like; the true sportsman should certainly not.

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MASCALONGE, PIKE, AND PICKEREL

Of the *Esocidæ*, or pike family, those likely to be encountered by the dweller in the northern woods

are the Mascalonge, the Pike, the Western and the Eastern Pickerels. All its members are distinguished by long bodies and heads, with flattened, elongated snouts and big mouths containing many sharp teeth, in the jaws and even on the tongue. They are all voracious, bloodthirsty pirates, which live mostly on other species of fish. When taken in good water all the *Esocidæ* are good eating, especially the pickerel.

THE MASCALONGE

This great fish (*Esox nobilior*), the largest of the *Esocidæ*, grows to a weight of eighty or more pounds, but one is seldom seen nowadays that will go over thirty pounds, and the majority fall far short of that. Its habitat extends from the St. Lawrence and Great Lakes waters westward through northern Wisconsin and southward to the upper Ohio and Mississippi Rivers. It is also found in Chautauqua Lake in New York and Conneaut Lake in Pennsylvania. It has a dark-grey-greenish body, the shades of which differ with different regions, so that many varieties have been named, though with very doubtful authority. It may be distinguished readily from the pike by the fact that the spots of a mascalonge are always darker than the ground colour, whereas those of a pike are lighter and bean-like in form. There are many ways of spelling and pronouncing the English name of *Esox nobilior*, but that given here is gradually becoming the standard.

It spawns in shallow water in early spring. Its flesh is edible, As a game fish it ranks high, though it relies wholly on strength, exhibiting little resource. The proper rod is a bass-rod of 8 or 9 ounces; a

multiplying reel with plenty of No. E line and Nos. 3 or 4 hooks on gimp snells and swivel to connect hook and line complete the outfit. A minnow, either alive or dead, or a frog, may be the bait, though most fishermen prefer a No. 4 trolling-spoon, which, however, should have but a single hook. The boat is rowed slowly along the edges of the pads and weeds, the lure is cast and reeled in again slowly. As in other fishing, open water should be gained as soon as a fish is hooked, in order to afford it less opportunity to foul itself and the hook. Large mascalonge are usually gaffed, though many shoot them through the head with a .22 rifle. If gaffed the fish should be knocked on the head as soon as pulled into the boat, or sooner if an opportunity occurs. When a fish strikes the spoon in trolling the boatman should turn the boat at once, so that the angler can reel in facing the fish. In still water still-fishing for mascalonge is common, the bait being a half-pound fish, usually a sucker. When a strike comes give the fish time enough to swallow the bait. If you succeed in hooking a ten-pound mascalonge on heavy bass-tackle you are not likely to forget the ensuing battle very soon. Dr. Henshall speaks of taking a 40-pounder on a nine-ounce rod! For trolling the steel rod is not bad.

THE PIKE

The Pike (*Esox lucius*) is the only member of his family which inhabits the waters of Europe. With us he is often confounded with the pickerel, but he can be readily distinguished at least from the Eastern pickerel by his light-coloured, bean-shaped spots, whereas the pickerel is marked as with a net of

darker hue than the ground colour, and has a much lighter belly. The pike is a northern fish, being found in the upper Mississippi, the Great Lakes, and Lake Champlain and the vicinity of these waters, and thence northwards to Alaska. Occasionally it occurs further south. In some regions it is found together with the mascalonge. Fifteen pounds weight is the usual limit, though it has been caught as heavy as twenty-five pounds, and four feet long. The pike is fished for with the same tackle, though it may be somewhat lighter, as the mascalonge and in much the same manner. The "Henshall" rod (made by Orvis, Manchester, Vt.) is as good for pike as for bass, and with it should go braided silk line, size F, and No. 2 or 3 hooks. Trolling is the usual method, but casting the dead minnow or spoon with a rod is much finer. It is not generally known that both pike and pickerel will afford good fly-fishing, large-sized, bright flies being used.

THE PICKEREL

In England the pickerel is a small-sized pike, but with us quite a different fish. There are three varieties, the Eastern, or reticulated (*Esox reticulatus*), the Western (*Esox vermiculatus*) and the Banded (*Esox americanus*).

Of these the Western variety, found west of the Alleghanies, and the Banded, found only east of those mountains, never grow to a greater length than one foot. The Eastern pickerel attains a length of two feet and a weight of eight pounds, though the average will hardly be more than two pounds, or even less. It is recognised by its net-like markings. It spawns

in spring. When caught in cool, clear water its flesh is delicious, especially in cold weather. The most satisfactory way to fish for it is with a light bass-rod and tackle, with Nos. 1 and 2 hooks on gimp snells. The old-fashioned long cane rod, bought in the country store, will do on occasion, especially in very weedy water, where playing the fish is out of the question. The bait may be a small spoon, a piece of pork, the throat of a perch, or the hind-legs of a frog, skinned. This is "skittered" along or under the surface until seized by the pickerel, when a pause is made to enable the fish to swallow it. Still-fishing with a minnow or frog is another method, though not so interesting. Trolling is also practised, and, finally, the pickerel will often take a sunken fly when the water is not deep, especially the Ibis, Montreal, and other high-coloured ones. Fishing through the ice with "tip-ups" is interesting, but hardly to be classed as scientific angling. The tip-ups can now be had of dealers very cheaply, so that it hardly pays to manufacture them at home. Minnows are used as bait, and unfortunately they are most attractive when alive.

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CHAPTER XIII

SPORTING FIREARMS

THE huntsman of the north woods is concerned primarily with the rifle, and in a much less degree with the shotgun. The reason for this is because grouse, quail, wild-fowl, and other varieties of game hunted with the shotgun are more numerous and more easily bagged in open districts nearer to civilisation than in the thick jungles of the northern wilderness, where working with dogs is far more difficult and in many districts impossible.

THE RIFLE

The instant a cartridge is exploded in the barrel of a rifle three forces begin to act upon the bullet, one positive, the propellent expansion of the gases, and two negative, gravitation and the resistance of the air. (To be accurate, gravitation begins to act only when the bullet leaves the barrel.) In consequence the bullet, if the rifle is held level, begins to drop from the instant it leaves the barrel and, according to the law of gravitation, falls constantly in an ever-increasing ratio. The falling of the bullet is increased by the resistance of the air, this resistance varying with the size and shape of the projectile. It follows that there is no such thing as a rifle "shooting level" for even a yard, contrary to the belief of the average woodsman.

Theory of Shooting

But the modern high-power rifle has such a flat trajectory that the fall of the bullet may almost be ignored at 200 yards, within which distance nine tenths of all big game are shot in the north woods. By trajectory is meant the curve described by the bullet from the moment it leaves the barrel until it strikes an object on the same level with the rifle. The flattest trajectory is the curve which is nearest to a straight line. Flatness depends upon the force with which the projectile is propelled. Thus if the pitcher tosses the ball gently to first base the curve of the ball through the air will be much greater than if he threw it with all his might. Flatness of trajectory is also aided by shaping the bullet so that it offers least resistance to the air, for which reason modern rifle bullets are made long and pointed. Air-resistance is the same, whether the air is propelled against an object in the form of wind, or whether the object is impelled against the air. When one considers the tremendous force of the wind its deterrent effect on a bullet can be readily understood, as well as that the result is, that the bullet flies slower and slower. To the resistance of the wind are due all irregularities in the flight of the projectile, which, if fired in a vacuum, would be perfectly steady, acted upon only by gravitation, The same would be the case in the air, provided, first, that the air were perfectly still, and, secondly, that the bullet were absolutely symmetrical. As this last is never quite the case, even with the most carefully made ammunition, there results a certain amount of "drift," or swerve of the projectile from its course. The cause of this is the placing of the centre of gravity of the bullet not quite in the centre of its form,

so that the resistance of the air on one side is slightly greater than on the other, causing the bullet to swerve up or down, or to the right or left, as the case may be. A familiar example of the swerve of a round object by twisting and thus rendering the air's resistance unequal is the "curve pitching" of the American baseball player; and, though an elongated projectile is less prone to swerve than a spherical one, the former is nevertheless by no means immune, though the tendency need not worry the north woods hunter, who does not commonly shoot his game at very long distances. Another influence on the flight of the bullet is a cross wind, which, if very strong, must be allowed for, but this again bothers the hunter far less than the military marksman.

In the days of spherical bullets imperfect fit of the bullet in the barrel often led to unequal friction and "gas-cutting" and hence irregular flight. To obviate this the inside of a rifle barrel is provided with spiral grooves into which the bullet fits, imparting to it a rotary motion, and always in the same direction, "on an axis parallel to the axis of the barrel and tangential to the trajectory."

Elongated projectiles are subject to spiral drift, the result of badly placed centre of gravity or too slow rotation, long bullets requiring more rotation than shorter ones. "Key-holing," or bullets striking an object flat side on, is one of the consequences of this, the twist of the grooves being in this case insufficient. Every manufacturer finds out for himself the twist best adapted to a particular projectile. The rifle grooves, which are from $\frac{2}{1000}$ to $\frac{5}{1000}$ of an inch deep, are made in several forms, all of which seem to be satisfactory.

Recoil

When a cartridge explodes in the chamber a powerful expanding gas is generated which exerts its force in every direction. The bullet, being lightly seated in the cartridge, feels and yields to this force first, and the other parts immediately afterwards as a reaction, which occasions the recoil or "kick." This recoil is strong in proportion to the powder charge and the weight of the rifle. The lighter the gun, the harder the kick, which is not only exerted in a backward but also in an upward direction, causing the muzzle to jump, with the result that one is apt to shoot high, especially with a short barrel, as in a revolver. A very thin barrel will "flip" or be depressed, shooting low. The barrel, in fact, actually bends slightly. It follows from all this that the most accurate rifles, and those recoiling least, are generally the heavier ones, the most accurate of all, the so-called "schuetzen" rifles, being too heavy for use in the field. Recoil is neutralised to some extent by a rubber recoil-pad on the butt, and by holding the rifle neither too tightly nor too loosely, so that the shoulder shall move elastically.

Jump

Flip

The Modern Sporting Rifle

The modern maker seeks to turn out an arm that will shoot a powerful charge with great velocity and a flat trajectory, the mechanism of which shall be safe and simple. All the first-class American manufacturers, like the Winchesters, Savage, Stevens, Remington, Marlin, etc., turn out perfect work, rifles that shoot with great accuracy and power. It only remains for the hunter to choose among the various calibres

and styles the weapon most suited to the task in hand.

The choice must be made of a variety of features, as between a large and small calibre, repeater and single-shot, pump-action and bolt, open and peep sights, one-piece and "take-down," heavy and light, shotgun and rifle butt, etc.

Calibre

The first question to be decided is that of calibre, or the size of the bullet in diameter, since the other dimensions are fixed by the ammunition-makers and the novice need not bother himself about them, except as affecting the weight of the bullet. This brings us to the question of cartridges in general, which are named for the calibre, the weight of the powder charge, and the weight of the bullet. Thus the .45-70-405 cartridge is one that is 45/100 of an inch in diameter, is loaded with 70 grains of black powder, and has a bullet weighing 405 grains. But one important explanation must be made: since the perfection of smokeless powder the sportsman should use no other, and the above cartridge is nearly always charged, not with black, but the equivalent of 70 grains or more of black powder in smokeless. As the makers always designate their cartridges as if charged with black powder, it is impossible to tell how much nitro (smokeless) powder is used in a given cartridge. The novice need not bother about that if he buys only ammunition made by the best firms. Later, in case he becomes bitten with the idea that he can build a cartridge of his own that will outshoot all others, he can send for a set of loading tools from the Ideal Manufacturing Company (of New Haven), buy his powder and

lead extra, and go ahead. If he is exceptionally clever at such things he will be amused, perhaps successful; if not he may blow a finger or two off.

The modern expanding, smokeless-powder sporting cartridge has a cupro-nickel "mantle" round the bullet except the soft lead end, or nose, which is left exposed. Smokeless powder of the slow-burning kind is used, and this is of two varieties, high and low power, the former being designed for modern nickel-steel barrels, the latter for soft steel rifles. Smokeless powder must be confined in order to explode, but must not be packed closely for fear of bursting the gun. Shake a smokeless cartridge and you will hear the powder shift inside. High-power cartridges are often used with old-style rifles, but the dealers do not recommend this, and the bullets for these cartridges are generally somewhat lighter than the low-power, for which reason the low-power loads are perhaps better for big game hunting at short distances.

Small Game Rifles

A rifle should be chosen either for big game or for small, the latter class including such animals as birds and foxes, 'coons, woodchucks, turkeys, grouse, etc. For these last the little .22-calibre rifles are quite sufficient, unless the range is to be commonly over 150 yards, in which case a .25-calibre Stevens may be preferred. Those who like a medium calibre, like the .30 or .303, for big game, may use this with a so-called miniature cartridge, having a reduced load and a steel-patched (non-mushrooming) bullet. I may say, in regard to the .22 calibre, that I have seen foxes killed instantly with a single .22-*long* bullet and large dogs with one .22-

long-rifle. The accuracy of the *.22-long-rifle* cartridge (using smokeless powder) is wonderful, and most of the rifles of this calibre on the market are very good. It is enough to say in their praise that when the great sporting weekly, the London *Field*, wishes to test a new .22-calibre cartridge, a Stevens rifle is chosen for the purpose, rather than one of British make. Among the small rifles that I have personally used the most satisfactory were the Stevens No. 80 repeater and the Winchester repeater of 1890, both of .22 calibre. The latter has the advantage of simple and durable construction (I have one that has shot well for five years and is yet good), but is chambered for only one length of bullet, while the Stevens uses all three of the standard lengths at will by the adjusting of a lever. For game the two longer lengths mentioned above should be chosen rather than the *.22-short.* Black powder is particularly filthy in small calibres, and should never be used. The Winchester and Stevens single-shot .22 rifles are very excellent, but for game a repeater is preferable. A "sporting" rear sight is best if the *.22-long-rifle* cartridge is used. Peep-sights are good in a good light, but hard to use at dusk.

Big Game Rifles

In choosing a rifle for game larger than a fox we are confronted with many important considerations, the chief of which is the question: large or small calibre—under the latter head coming all rifles having a smaller calibre than .35. Under the headings *Moose-Hunting* and *Deer-Hunting* I have indicated my own preferences, which are for large calibres, though deer may be safely hunted with a smaller calibre than moose or grizzly bear.

To put it shortly, the advocates of the small calibre for even the biggest game claim that this kind of rifles shoot flatter and with greater velocity, that on this account their penetration is greater, and that, with the soft-nose, expanding bullet (or some patent like the "Hoxie"), fully as terrible a wound is made. In answer it may be said that there are large-calibre rifles (for example the Winchester .35 and .405) which have a very flat trajectory; that this is also true of velocity, and that a relatively small bullet with soft nose, driven at a very high velocity, is all too apt to be shattered before it can penetrate far enough. Several instances of this kind have occurred under my own eyes while hunting moose. But the greatest objection to a bullet lighter than 250 grains weight is that its shocking power is too slight. What is wanted is not only a bullet that will kill if placed in a vital spot (any bullet will do that), but one that will knock down and disable even when placed in a part of the animal that is not vital. In the latter case, with a small calibre, the animal, especially a moose, will be very apt to escape, while, with a big calibre, the animal will be stopped wholly, or at least stunned long enough to get in another shot or two. Too many moose have been hit with .30 rifles and escaped, perhaps to die miserably later, for most of us to advocate a light bullet. Both penetration and weight of bullet are necessary. For sheep, goats, and animals of that size the Savage .303 and the Springfield (1903) and .30 Winchester are about right.

Modern rifle barrels are made of nickel-steel and especially thick at the breech, where nitro powder exerts the greatest pressure. On this account barrels

are usually made tapered towards the muzzle, which saves weight but gives a somewhat less stable balance than, say, the '94 Winchester model. The front sight, too, must be much higher and therefore more liable to injury. The latest barrels are all short. Round barrels are to be preferred to octagon.

Barrels

Ten pounds was not much for the average old-fashioned rifle to weigh, but to-day 8½ pounds is heavy enough for the largest calibre, and even that is a big load to carry far when still-hunting in a rough country. To obviate this the makers have put on the market the so-called light-weight rifles. The '86 Winchester .45-.70, for example, weighs, with 26-inch octagon barrel, 8¾ pounds, while the new "extra light-weight," with 22-inch round nickel-steel barrel, weighs but 7½ pounds. The regular Savage .303, with 26-inch octagon barrel, weighs 8 pounds, while the "feather-weight" of the same calibre, with 20-inch round nickel-steel barrel, weighs but 6 pounds. Of course this saving of weight has its disadvantages, such as increased recoil and "flip." Carbines are old-style rifles with cut-down barrels.

Weight

It is seldom one sees nowadays a single-shot rifle in the hands of a big game hunter, for, although that kind is said to balance and shoot better, the advantage of having several extra shots at instantaneous command is too great to forego. The question of the number of shots at command is not so vital. The older models have nine or more in the magazine. The model '95 Winchester

Repeaters

holds only four, which, with a cartridge in the barrel, gives the hunter five shots, all he should reasonably desire. The Savage .303 holds five in the magazine. The older models are generally made with full or half magazines, the latter carrying fewer cartridges and being a trifle lighter. One objection to the older Winchester and the Marlin magazines, which are in the form of tubes running under the barrel, is that with every withdrawal of a cartridge the balance is changed; this might be serious for target-shooting, but for game it is not, though the new systems of the Winchester (1895) and the Savage, the "box" magazines, do give a practically unvarying balance. Both the tube and box magazines are operated on the "pump" or lever system, which is unfortunately very noisy, the box-magazine being the better in this respect. The "bolt" action system of feeding the barrel from the magazine is characteristic of foreign rifles, a few of which, notably the Mauser and Mannlicher, are used in this country, They are far more expensive than American rifles, and do not seem to me to possess sufficient compensating advantages.

Automatic repeating rifles, which fire a number of shots with no other trouble on the part of the hunter than pressing the trigger each time, have now been placed on the market by several good firms, the most noted being the Winchester and the Remington .35 caliber. I share with most old hunters a prejudice against these murderous weapons, though it must be admitted that the abuse of them lies for the most part with the user rather than with the rifle itself, and one may as well give way with good grace before the inevitable advance of mechanical science.

It is curious that nearly every writer on sporting rifles has a deal of fault to find with his sights, and upon no subject is there more disagreement than this. Generally speaking there are two kinds of sights, open and "peep." The latter have the great drawback that they are hard to use in a poor light, besides being harder to align quickly, though for target-shooting they are undoubtedly best. Many good riflemen use them in the field, but most probably prefer open sights. The best open front sight is furnished with an ivory bead. This can be blackened in some temporary way (smoking with match) when shooting over snow. Of rear open sights there are many. I prefer the old "buckhorn," though many object that it obscures part of the vision. In any case never choose a complicated sight, that takes time and care to adjust, for sporting purposes. Simplicity is the chief and cardinal virtue here. Those who prefer peep sights should secure the catalogues of the Lyman, Marble, and Savage companies, especially the first-named. In case a Winchester 1895 model rifle is used, the Marble flexible peep sight is the best.

Sights

The front sight is very liable to injury, especially if it has an ivory bead, and should never be leaned against rocks or laid down on them. It seems odd that no front-sight protector for sporting rifles has ever been placed on the market.

In regard to rifle telescopes, adjusted above the barrel, it is possible that a hunter in the Rocky Mountains, where very long shots are sometimes necessary, would find them desirable, but the north woods sportsman will not. The danger is that one will become so used to them that good shooting without them

is impossible. Personally I would not use one for deer or moose for "a farm down East." At present the best telescopes are turned out by the Stevens Arms and Tool Company. The Brayton telescope sights are well thought of by some.

Stock and Butt

The stock, and in fact the whole rifle, should be as simple as can be bought, and totally without sun-reflecting metal-work. Such parts should be blued or browned. Butts are made half-moonshaped, the regular rifle-butt, or with the slightly concave shotgun-butt. The latter is preferable for hunting, though it is a matter of taste.

Gun-sling

A sling for the rifle is an excellent thing when still-hunting, but the metal hooks should be bound with leather or yarn, so that they will not rattle.

Adjusting

It goes without saying that one should spare no pains to become familiar with the shooting powers of a new rifle. Practice, and lots of it, is necessary at all ranges and at all elevations. The first thing to learn is not to flinch when pulling the trigger, a difficult task for many, but absolutely essential. A high-power rifle has considerable recoil, but the kick will not hurt you in the slightest, especially if you use a shotgun-butt covered with a rubber recoil-pad, and, if you are very nervous, supplied with a Rowley cheek-pad. Most hunters set their sights by experiment so that, by drawing a moderately fine bead, the rifle will shoot as held at 75 or 80 yards. Thus adjusted you are not likely to overshoot seriously any big game at a closer dis-

tance. Mr. Kephart (*Guns, Ammunition, and Tackle*) recommends a second adjustment, to be found easily, even in the dusk, by a filed notch, sighting the rifle for 180 yards, which will cover all usual distances up to 200 yards. The important point is to know one's arm intimately, Choose your cartridge and stick to it, for cartridges vary, even of the same dimensions and supposed power. In this connection it may be said that the cartridge usually has more to do with good shooting than the rifle. Having adjusted the rifle to the game to be shot (the above suggestion referring only to deer and moose), proceed to practise hard. Learn to catch the sights quickly, to shoot up and down hill, offhand, kneeling and lying down; also at objects in the water, big rocks in the field, and a barrel rolling down hill (for deer).

Care of Rifles

The first cardinal rule is never to allow a rifle to stand over night without cleaning. The novice is apt to have too much confidence in the cleanliness of smokeless powders, some of which are quite the reverse of this, though the lack of smoke masks their true qualities. Such powders leave a residue in the barrel, that, although not so apparent as that from black powder, is yet more obstinate. There are good nitro-cleaners on the market, among them those made by F. A. Hoppe of Philadelphia, which have been praised by experts. "No. 9 Nitro-Powder Solvent" is a proper cleaner, as well as that made by the Marble Axe Company. It must be remembered that because a barrel shines inside it is not necessarily quite clean. It is sufficient to clean the rifle after each use with some such oil as "3 in One," and with the solvent when left a day

or two without use, and especially before putting away. At the end of the season swab it out with mercurial ointment. I have found the Marble jointed brass cleaning-rods very satisfactory. The soft brass is apt to peel, but this does not injure the rifling if the dust is removed from the barrel. They are strong and follow the rifling better than one-pieced rods. If any rust appears in the barrel use the brush with rags afterwards. Only the thinnest of oil (as "3 in One" or Savage) should ever be put on a gun lock, and then very sparingly. Plug both ends of the barrel before putting away for the season, or use the Marble barrel "ropes." The Winchester people make a very convenient little mirror for non-take-down rifles, by means of which the inside of the barrel can be easily inspected. ($ .50) Gun-grease may be used for barrels, though they should be well swabbed after using it, except when left for a long time. The best rust-preventive is eternal vigilance and frequent cleaning, even out of season, as rifles often "sweat" in their cases.

Bibliography

Guns, Ammunition, and Tackle, in the American Sportsman's Library (Macmillan) contains much information, both of a practical and theoretical nature, Mr. Kephart's chapter on the sporting rifle being especially valuable. *Modern Rifle Shooting*, by Dr. W. G. Hudson, treats more of military shooting. Walter Winans's *Practical Rifle Shooting* is excellent, but deals mostly with British conditions and game.

THE SHOTGUN

The proper shotgun for the north woods is one of

medium weight (say 7 pounds), 12-bore, hammerless ejector, 28-inch barrels, and, as most of the shooting will be done in cover, moderately bent. **Choice** No rule can be given in regard to quality, except to go to a reputable dealer and pay as much as you can afford. A cheap shotgun is a miserable thing indeed, and dangerous to boot. If you cannot spend over $25.00, then get a Stevens, which at all events is safe, and quite wonderful for the price. One must pay three times that sum for anything recognised by the experts as good, while really fine shotguns cost from $200 upwards, their barrels and locks being marvels.

Of course if duck-shooting is to be engaged in mostly a heavy 10-bore gun may be preferred, though 12-bores can kill ducks nearly as well. There is really less for the novice to do in the choosing of a gun than a rifle, and he must trust his dealer more. All that is necessary is to select one that fits the shoulder and seems handy. It should be furnished with a rubber recoil-pad, as one sometimes uses big charges in the woods, ducks and even geese being possible acquaintances.

The first thing to learn is not to shoot either yourself or your companion. Remember that shotguns, even more than rifles, have a way of going **Caution** off, sometimes with only a jar, and the one safe rule is to be sure that the gun is absolutely *never* pointed towards anyone. Then, if it is discharged, nobody will be hurt. Particular care should be taken when getting over fences; at such times it is better to remove the shells. Never allow the hammers to rest on the plungers, but

carry the gun at half-cock, or with the safety catch on.

When walking with the gun over the shoulder carry the trigger guard *up*, so that the muzzle will not point level or down.

Practice

As all good sportsmen (unless very hungry indeed) are expected to bring their birds down on the wing, it is evident that the novice should devote as much time to practice as he can afford. To join a gun club and shoot at clay pigeons would be obviously the best thing to do, for, though a target shot is by no means always a good shot at game, there are rudiments of the sport that cannot better be mastered in any other manner. Improvement must be left to experience and knowledge of the habits of the quarry in the field itself. In regard to certain essentials you might better be coached. Most good wing shots will assure you that they keep *both eyes open* when shooting. The head is kept well up. The right hand takes a firm grip of the stock, to prevent flinching and help guide the gun. The left hand is extended naturally. The heel of the stock must rest against the same place on the shoulder every shot. This is very important, since one has no time to squint along the barrel. How far ahead, above or below a flying bird one should hold depends of course upon the kind of bird and the rate at which it is travelling. Judgment of such points also belongs in the realm of experience.

The single-barrel repeating "pump" shotguns, represented by the Winchester 1897 take-down model ($21.60), have been taken up to a great extent

lately, it being claimed for them that sighting over the single barrel is easier than down the rib between two. They are certainly hard shooters, though rather heavy. The magazine contains six shells. In regard to the sporting morality of repeating shotguns it may be said that the sentiment of most hunters has been against them, but that they are gaining ground even in this direction. My own conviction is that the game-hog is not made by his weapon, but is born. The repeater is not like the automatic reel, for you may use the former as your feelings prompt you, while the reel can only be used in an unsportsmanlike manner, *i. e.* it does not give the fish a fair chance. It follows that the reel is to be condemned, while the "pump" gun is not essentially unsportsmanlike.

"Pump" Guns

REVOLVERS AND PISTOLS

The revolver is an arm hardly ever used in the north woods, however convenient it may be on the plains. The only occasion when I care to carry one is trapping bears and other large game, when a rifle might be considered in the way if one is burdened with duffle and perhaps a number of steel traps. A splendid weapon is the Smith & Wesson .38 calibre revolver, using the "Special" cartridge; better still for big game is the Smith & Wesson .45 calibre. The fame of the Colt revolvers also is of course widespread. The Marble Company makes a very convenient revolver cleaning-rod.

In regard to pistols my readers are referred to the chapter on *Personal Outfit:* (3) *Sporting Articles.*

It only remains to mention the automatic pistols, of which the Colt ($22.00 in .45 calibre, $21.00 in .38) appears to be the best. All the automatics are somewhat complicated. I remember a whole camp upset for a week trying to put in order an automatic pistol. It is certainly not a north woods weapon.

Bibliography

Guns, Ammunition, and Tackle, in the American Sportsman's Library, is a competent and thorough authority on revolvers and pistols. W. Winans's *Hints on Revolver Shooting* is the special authority. More elaborate is his *Art of Revolver Shooting*.

CHAPTER XIV

MOOSE-HUNTING

THE Moose (*Alces americanus*), or American Elk, greatest of the deer family, is perhaps the grandest prize that can fall to the prowess of the hunter in North America. It grows largest in Alaska, where it attains such a size (over 7 feet high at the withers) that some naturalists are inclined to regard it as a separate species. The largest known Alaskan antlers (in the Field Columbian Museum, Chicago) have a widest spread of 78½ inches, and probably measured more than that at death. The Alaskan moose is a black, brown, and grey monster, while the moose of the United States and Canada is black with grey legs and a brownish-black head. Only the tips of the body-hairs are black, the rest of the hair being whitish. The average bull stands 6 feet high at the shoulders and weighs from 700 to 1,000 pounds; the cow hardly less. The antlers of the adult male consist of a backward sweeping palmation with a separate set of prongs over each brow. These two parts of the antlers are called by woodsmen the palms or pads and the "hookers." The record head for moose shot south of Alaska measures 67 inches from tip to tip, and came from New Brunswick. It has ten points on one palm and thirteen on the other, and weighs, including a portion of the skull, 67 pounds. These enormous antlers impede the progress of the bull

through the thick woods in which he lives, but much less than one would think. By means of laying them back on his shoulders he manages to penetrate the thickest jungle at a "slashing trot," as President Roosevelt aptly puts it, being greatly assisted by his abnormally long and powerful legs, which enable him to stride over windfalls that would stop any other deer. A spread of over 60 inches would be considered anywhere but in Alaska to be very large for moose-antlers, and the hunter need not be disappointed if his set does not fall below 45 inches, provided it is symmetrical, a point as important as size. A young bull moose one and one half years old is a "spike-bull," from the appearance of his antlers. Palmation begins with the third year, but the fully developed antlers, separated into pads and hookers, hardly appear before the bull's fourth autumn. A moose grows his finest antlers between his sixth and his tenth year, but, as with the wapiti, it is almost impossible to tell the age of a moose by the horns. The palms grow broader with age and the points shorter, until they become mere scallops; the horns also become crabbed and ugly in old age. After spending the latter part of the winter totally denuded of his antlers, the moose's new ones begin to sprout in early spring and grow steadily until August, when they attain their full size for that year. The "velvet" in which they have been enveloped now begins to loosen and crack, and the bull endeavours to assist nature by rubbing it off against trees and shrubs, the horn being revealed a rich brown except at the points, which are whitish and polished. From this time on through the rutting season, which lasts from about the first week in September until the last of October, the bull keeps

A NOVA SCOTIA TROPHY

Digitized

his antlers in fighting order by slashing to pieces shrubs and young trees, a habit called by woodsmen "hooking," and which is possibly also a challenge to other bulls. The antlers are dropped in mid-winter.

A peculiarity of the moose is the bell, an elongated dewlap of skin falling from the throat of the bull for some eight to fourteen inches, in some instances even lower. Cow moose also have bells, but in most cases undeveloped and therefore unseen. The bell slightly decreases in length after the antlers are dropped in winter. It is longest in young bulls.

After losing its antlers the bull, like the cow, defends itself with its fore feet, extremely formidable weapons. Wolves and bears (sometimes cougars) are prone to attack calves and even cows, but unless the snow is deep, impeding the movements of their intended victims, they are usually beaten off, though many instances are on record of calves and even cows being killed. In Nova Scotia it is a common thing for bears to answer the call of the cow moose, hoping to make a breakfast of the yearling, or perhaps the mother as well. In the autumn of 1906 a man with whom I am acquainted shot two bears that came (on different occasions) to his moose-call.

In May the cow gives her yearling calf the slip and betakes herself to some swamp or other secluded spot (often an island, where she is safer from her enemies), where towards the end of the month she gives birth to one calf if it is her first, otherwise generally to two, awkward reddish-brown, long-legged little beasts, that remain with their mother until the next spring. In spite of their apparent awkwardness they can run and even swim strongly before they are a week old, as I can testify from

repeated personal experience in catching them. (Compare the picture *The Madonna of the Moose.*)

During the hot season moose frequent the swampy grounds about lakes and streams, spending much of their time in the water itself, in order to avoid the insects that torture them and to feed upon the leaves, stems and roots of aquatic plants. They generally remain in low country until the mating season is over, when they repair to the ridges for the winter. Here, when the snow comes, the bull and cow, with one or more tolerated calves of that spring, and perhaps even another moose family, form a "yard"; in other words they make a stay of longer or shorter duration in some one district where feed is abundant, the snow being gradually trampled down by the constant walking of the great beasts about the yard, which may be few or many acres in extent.

At the end of winter cows and bulls, which, so far as we know, mate but for a single season, separate and are seen no more together. Monogamy is the rule, but bulls have been known to desert one cow for another.

Moose feed chiefly upon browse, twigs and leaves of several varieties of hard wood, their favourite being the moose-wood (striped maple), as well as shrubs, sweet-fern, and, to a very limited extent, even grass. They gnaw off the bark of trees and strip the tender leaves with their great prehensile upper lip and the teeth of the lower jaw. If the young trees are too high to reach the moose will ride them down with its breast. In eating grass or snow they often kneel, but generally adopt a kind of awkward straddle.

In regard to Western moose President Roosevelt says:

THE MADONNA OF THE MOOSE

In the summer it occasionally climbs to the very summit of the wooded ranges, to escape the flies; and it is said that in certain places where wolves are plenty the cows retire to the top of the mountains to calve. . . . Their ways of life of course vary with the nature of the country they frequent. In the towering chains of the Rockies, clad in sombre and unbroken evergreen forests, their habits, in regard to winter and summer homes, and choice of places of seclusion for cows with young calves and bulls growing their antlers, differ from those of their kind which haunt the comparatively low, hilly, lake-studded country of Maine and Nova Scotia, where the forests are of birch, beech, and maple, mixed with the pine, spruce, and hemlock."

General Remarks: The moose is gifted with the largest and most efficient nose among American fauna, as well as keen eyes and sharp ears. Its smelling powers necessitate that it must be hunted either up-wind (blowing from the game to the hunter) or in a dead calm. Its hide is very tough and, unless hit in a vital spot, it will carry off a lot of lead. Its flesh, which resembles beef more than does venison, is of good flavour, especially after the month of October.

The moose, except in the rutting season, is as gentle as a deer, in fact more so. It will always run from man, the cow not even stopping to defend her young. In the mating season, however, the bulls are of uncertain temper. Four fifths of them will run, even if wounded and cornered, but the other fifth will charge, and a charging moose is a terrible opponent. It is easy enough to dodge them if the nature of the country allows, but when the underbrush is thick, and strewn with rocks and tough vines, a stumble and fall might mean being hooked and trampled to death.

Moose have a way of falling, apparently shot to death, and then of recovering unexpectedly and either running long distances or escaping entirely. Never go too near a moose until you are sure it is not only down, but "out." Rather give it an extra bullet in a vital spot. An old guide told me that, after knocking down a big bull, he had drawn his knife, and, stooping over the moose, was about to begin skinning it when it suddenly came to life with a mighty sweep of its antlers, which the hunter just managed to avoid, and then, getting on its feet, disappeared in the brush, before the hunter could secure his rifle for another shot. Bulls fight each other savagely in the rutting season and often inflict severe wounds, but it is generally a clash, followed by a pushing-match, the defeated animal retiring from the field before great harm is done.

Rifles: In connection with no other branch of sport does the evergreen controversy between the advocates of large and small calibres rage as with moose-hunting. This book is not the proper place to do more than add my personal testimony and advice, but a short statement of the conditions will serve to freshen our minds on the prime requisites of a big-game rifle, and I will preface this résumé with the statement that I am an advocate of the large calibre, for any game bigger than deer. It is admitted that the best rifle (or perhaps we really ought to say cartridge, since the better manufacturers all make good rifles) is that one which kills quickest and most surely. Penetration alone, though essential, is not enough; indeed too much is a detriment, since a bullet should expend all its energy on the game, whereas, if a bullet passes completely through a body, it is

evident that some of its energy is wasted. Thus of two bullets of equal size and weight that one that goes, say, two thirds of the way through a deer will have a greater shocking (and therefore disabling) effect than the other that passes quite through, if both strike the same place. The ideal bullet would just drop out on the opposite side, thus expending all its energy while giving two bleeding orifices. In the next place it is evident, first that the heavier the bullet, and secondly the greater the striking surface, the greater will be the shock to the animal. The small calibre lovers assert that their rifles (say from .25 to .33) shoot with a flatter trajectory (*i. e.* without having to raise the sights so much), are easier to handle, have less recoil, and finally that, on account of the expansive qualities of the modern soft-point bullet, the striking surface is to all purposes as great. The answer (correct, it seems to me) is that a bullet weighing 170 or 200 grains cannot exert such a shock as one weighing from 250 to 400 grains. Moose are shot in four cases out of five at a distance not over 100 yards, so that a long-range rifle is not usually necessary, the .45-.70-.405 being a better moose gun than the .30-.30, in spite of the fact that the latter ranges three times the distance. Inventors are constantly striving to offset the advantages of the big bore while still cleaving to the small, most of their experiments having to do with the upset, or mushrooming, of the bullet. The latest cartridge that I have seen is the Hoxie, which has a hollow bullet with a small steel pellet at the point. Upon hitting a body, this pellet is driven down the narrower hollow channel, splitting it and causing it to flatten out immediately and effectively. On the whole it may

be said that the chapter is not yet closed, and it would be an immodest man who should assert, this or that is the only right rifle or cartridge. While many moose are killed, and sometimes killed quickly, by small-bore bullets, the result of my observations and investigations has been to the effect that, taken all in all, the large calibre rifles have undoubtedly done surer and quicker work. My advice is, therefore, to choose one of the following rifles:

.405 Winchester
.35 "
.45–.90 H. V.
.45–.70–.405

If the country to be hunted is thick the last-named rifle may be low-power, as that carries a bullet weighing 105 grains more than the H. V. cartridge, though the latter will carry farther. The two first-mentioned rifles are terribly effective. If you prefer a small-calibre choose one of these:

.30 Springfield (1903)
.303 Savage
.33 Winchester

There are other good rifles of course, and I make no mention of foreign wares, as I can see no use in going abroad unless we can better ourselves, which, in this case, we cannot. Foreign rifles are also three and four times as expensive as our own.

When about to buy a rifle, if you are not sure what you want, there are three good plans to follow: First send for the catalogues of the prominent makers, Winchester, Savage, Stevens, Remington, Marlin,

etc., and read them carefully, as they are full of instruction; secondly, inquire of some hunter in whom you have confidence who has hunted over the district you intend to visit, what kind of weapon is used most there; or, thirdly, get some friend to buy your arm for you, informing him in regard to your quarry and the locality of your hunt. (The addresses of the best makers can always be found in the advertising sheets of the sporting periodicals.) If you follow the advice given above in regard to calibres you will not go wrong, but when it comes to choosing sights it is a different question, as that is very much a personal matter, eyes varying greatly. As a general rule open sights are best for hunting, but many prefer some kind of peep sight. Ivory front sights are generally used. In any case do not choose a complicated rear sight for hunting, but rather one that can be instantly changed, like the "Sporting" and others similar. For those preferring peep sights the Lyman "receiver" sight may be recommended, except for the 1895 Winchester rifles, with which the Marble flexible peep sight should be used. In this connection read the chapter on *Sporting Firearms*.

A *cartridge-belt* holding at least a dozen cartridges is a convenient article to wear, as the extra shells are prevented from jingling in the pocket. It is a good idea also to carry one loose cartridge in the most available pocket and not to have any in the barrel unless shooting seems imminent. When this moment arrives open the breach slowly and quietly so that a cartridge is not thrown into the barrel, and slip the extra one in. This can be done with less noise than when working the lever hard enough to throw in a cartridge. Of course when game seems sure to appear

any moment the barrel should contain a cartridge, but the hammer should be at half-cock, or, in a hammerless, the safety-catch should be on. The movement of cocking is made almost automatically as the rifle goes to the shoulder. When alone there is less danger in keeping a shell in the barrel.

When in a good game country a rifle should not be kept in the case. Many a deer and moose has been lost by the neglect of this rule.

METHODS OF HUNTING

There are two recognised methods of hunting the moose, Calling and Still-hunting.

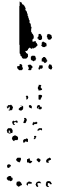
CALLING MOOSE

This is practised during the rutting season, when both bulls and cows are wandering about (called *travelling*) seeking a mate, and consists in imitating the low or call of the cow, and sometimes the challenge of the bull, for the purpose of luring the bull within shooting distance. It has been rather the fashion with writers to question the entire sporting morality of this method, but, it seems to me, without reason; for, carried out logically, the same line of argument (unfair advantage of the game, etc.) would condemn all shooting for sport, with which ultra standpoint, which in itself is quite consistent, we can have no quarrel. Successful moose-calling can be practised only under weather conditions which obtain only rarely, and requires a great deal of skill on the part of the caller, as well as coolness and nerve on that of the sportsman, who, after waiting a long time in the bitter cold without stirring, and probably sub-

By courtesy of "Forest and Stream"

SALMON POOL; GRAND CODROY RIVER, NEWFOUNDLAND

CALLING MOOSE



jected to a good deal of suppressed excitement, must pull himself together at the proper moment and shoot straight. As a matter of sporting morality all our cervidæ should be protected during the rutting season, but, since it is allowed by law, it is just as well to remark that many years of moose-hunting, both still-hunting and calling, have convinced me that the one method is every bit as sportsmanlike as the other; in fact that, if anything, calling gives the moose the fairer chance. I believe that most of those writers whose authority obtains in the land, and who oppose calling as distinctly inferior to "fair and square still-hunting," are gentlemen whose experience in moose-hunting has been very restricted; for no man is really an experienced moose-hunter who has not lived years in the moose country, long enough to have hunted the big deer *dozens of times* and to have absorbed an intimate knowledge of its habits and nature. Most authorities aver that in calling, the beast, absolutely blinded by passion and taken completely off its guard, is lured to a sure death, while the sportsman sits comfortably on a log and leaves all the scientific part of the work to his guide, merely shooting the unsuspecting quarry down when it appears. Now what is the actual truth? I quote from my own letter to *Forest and Stream*:

The bull moose, far from being so blinded by passion as to be unsuspicious, is never in the whole course of his existence so absolutely suspicious and on his guard as when he approaches either a cow or a caller in the mating season. Unquestionably he is eager for the tryst, but his every sense is alert, for his instinct, and often his experience, tells him that many a danger lurks. His eyes, his ears, and most of all his abnormal nose are never so keenly at work. Let the lightest breath of air be stirring and he will never come to the call

except from the leeward, circling the locality of the call if necessary, and then his coming will depend entirely upon the scent his delicate nostrils receive. If a cow is calling he will come; if a man, never. Would this be the case if he were the passion-blinded, unsuspecting beast the "fair and square still-hunters" would make him?

It will be said that the caller plies his trade only in a dead calm, when the chief defensive weapon of the bull is powerless. This must be admitted; but does the still-hunter take no such advantage of his quarry?

"There are some days," says the classic authority on still-hunting, "when you might almost as well stay at home. Such are the still, warm days of autumn, when you can hear a squirrel scamper over the dead leaves a hundred yards away. . . . Such are the days when the snow is crusty and stiff or grinds under your feet; . . . in short, all days when you cannot walk without making a noise, etc; . . . against a strong wind they cannot smell you and cannot hear you as well as usual." (T. Van Dyke.)

This was written of deer-hunting, and moose have bigger and better noses and ears. Does the good still-hunter of moose go forth in any weather but that of his own choosing? Never. He chooses a windy day, and one on which neither too much dryness nor crusty snow will cause noisy walking, and he approaches his quarry carefully from the leeward side or across the wind. The storm-and-stress period of the great beasts' yearly life has ended; they have yarded and are either lying down, quietly and peacefully resting, or as peacefully browsing on the young trees, in either case as unsuspicious as a moose ever is. The moose lies down with his eyes and nose to leeward and throws up his big ears to catch any sound borne to him by the wind blowing over his back. He feels himself secure, for he is at home and not going out of his way to "look for trouble" as when he went courting. On this account any hostile sound comes as a surprise and he is not especially on his guard; for which reason, as above said, when he is shot it is nearly always from ambush and without warning.

Much more might be said about the comparative success of the two methods—whether there are more failures in calling than in still-hunting, as I believe; the difficulty of

shooting straight after waiting near the freezing point for an hour, usually more, etc. It is, of course, more sportsmanlike to call a bull yourself than to have him called for you, but might not the same argument be used against the bird-hunter who uses a setter? Watching a good dog work is acknowledged to be one of the great charms of bird-shooting, and yet he greatly aids the hunter. He warns his master and even points out the very spot whence the quarry will rise. How, then, about the calling of a moose? Is there no interest in seeing and hearing a practised guide call up a bull moose? Verily there is. And the moments following the answer of the bull cannot be matched in any kind of hunting for excitement, at least in North America.

Doubtless moose are more easily circumvented, by both methods, in little hunted districts, which is merely repeating an ancient sporting axiom. In a country like Nova Scotia, where they have been pursued longest, they are very wary. They know well man and his works and cannot be called, as I have heard has been done farther west, by beating on a tree.

How easy it is for even a "great authority" to fall into error is instanced by Mr. A. J. Stone (really an authority in his own field), who tells us (*The Deer Family*, American Sportsman's Library): "Just here I want to correct a very general impression that the bull moose can be called by the use of the birch-bark horn, in the belief that he is approaching a female. No bull was ever half so stupid; such a thing is entirely unreasonable."(!) This sounds like the line of argument adopted by the enemies of Columbus. There are several thousand moose-hunters in Maine and Canada who, in spite of Mr. Stone's "correction," are still victims to the general impression that the bull moose can be called!

Calling is done with a horn of birch-bark from 15 to 18 inches long, about ¾ of an inch wide at the small end and 3½ to 4 inches at the other. It is an art only to be mastered by long experience in the woods, with plenty of opportunities for listening to cow moose themselves, as well as to good human callers. The greatest artist is he who best knows and can closely imitate the many lows, whines, and grunts of the cow in the rutting season, and as they are numerous, and vary with individual cows, it is no simple task. This variety of note accounts for the fact that hardly any two guides seem to call in the same manner, one making a sound like a trumpet, another like a steam siren, while a third might be an old sow with a case of bronchitis. In general, however, the low of the cow moose yearning for male companionship is a long-drawn-out *Oo-wau-ach!* beginning in a high key, swelling, and then sinking through about an octave on the prolonged *wau*, which is slightly guttural, and ending with a grunt. This is repeated once or twice. From ten to twenty minutes intervene between the calls. The calling takes place from some point of vantage, perhaps a rock, knoll, or tree, commanding a bog, barren, or other space open enough to give a fair shot at a bull approaching within a couple of hundred yards. Some call from canoes, but these offer an unsteady shooting platform, and it is better to be a little above one's quarry than below it.

As moose generally remain quiet during the day, and some air is always stirring so long as the sun is above the horizon, it follows that there are only two periods of the day or night in which calling is possible, since the first and most absolute essential is a dead

calm. The reason for this is twofold: first, and less important, so that the caller may hear a distant answer, and chiefly because, if the slightest breeze is stirring, the moose, though he may hear the call and approach, will not "speak" (answer), but will surely keep out of sight and circle round until he gets to leeward and tests the scent. Then good-bye, Sir Moose.

The choice between morning and evening for calling is often solved by accepting both. For myself, I do not like to call at night, except under certain conditions, for the reason that the bull is all too apt to arrive after it is too dark for anything but a chance shot, which can satisfy no true sportsman. I have known of too many bulls coming up late at night from a great distance and passing within a few yards of the impotent hunters, usually to get their scent and disappear for good. Another mistake too easily made in the dusk is to shoot a cow for a bull, a very common occurrence. The only occasion when calling in the late afternoon is justifiable is when the party is intending to leave that part of the country before morning, or when there is at least an hour or more of daylight left. In the latter case a few calls, made low, so as not to start a bull at a greater distance than he can cover before dark, may be made, the real calling being reserved for the morning.

Called bulls act in very different ways. Occasionally one will answer and come up at once, "speaking" every few minutes, while another will approach noiselessly without any vocal accompaniment, reconnoitre the situation, and disappear without the hunter knowing of its presence. This is likely to be a young bull that has already felt the antlers of a

successful rival, or one that has been shot at in times past. The extraordinary noiselessness with which such a monstrous animal can walk through thick bushes and dry shrubs on a perfectly still morning is perfectly wonderful, and is due in great measure to its comparatively small hoofs, which it places gingerly on the ground. A big bull is apt to come to the call fairly roaring with rage, especially in the evening, but as a rule he is too much on his guard to do more than utter his rather subdued "wah!" A quiet bull is often betrayed by his antlers, which, in the heavy timber, he cannot prevent from striking against an occasional limb, making a sound too characteristic to be mistaken.

Camp is made either on the calling-ground itself or within easy approach. No more noise is made than is actually necessary, chopping being avoided unless a strong wind blows from the direction whence the bull is likely to come. If in the immediate vicinity of the calling-place even a fire is a risk. If made it should be a small one of dry hard wood, giving little smoke. No cruising about the vicinity is allowable. Some guides even taboo the pipe in camp, and of course always when calling. It is best to eat nothing the evening before that will cause the stomach to roll audibly, such a noise being very disconcerting when listening in a dead calm. One should rise in time to get a bite to eat, as nothing is so foolish as to go out in the cold with an empty stomach. A cup of hot coffee and a biscuit will suffice.

There is one little luxury of moose-calling that I have found most convenient, namely, a small electric pocket-lamp. Before daybreak it saves the trouble of striking innumerable matches to consult

one's watch, and it is handy when getting to the ground in darkness. One should be at the calling-place at dawn or a few minutes before, and if it is the still, frosty morning desired, the hunter will be grateful for everything warm that he can pull on: double underclothes, sweater, two or three pairs of socks, mittens, and, if camp is near by, a blanket too. The whisky-flask may or may not be taken along. I have known it to raise the temperature of the blood when it badly needed raising. The caller takes his chosen station while the others of the party make themselves as comfortable as possible, taking positions in which they can remain a considerable time without changing or "fidgeting," as any and every noise prevents the caller from devoting his undivided attention to listening for the far-off "wah!" of a bull. When the great beast is within a mile or less the hunters either remain where they are, or the caller may send them to stations nearer the bull; this depends entirely on the "lay of the land." If the caller cannot induce an apparently unwilling bull by carefully modulated whines and lows, or, if those fail, by imitating the challenge of the bull and striking the bushes with his bark call as if a rival were trying his antlers, he must either be given up or still-hunted, and this, in a calm and with the bull's suspicions completely aroused, is a difficult task indeed.

When the bull approaches as near as he seems likely to come, give it to him without delay, taking a steady aim at his shoulder or a little behind it, rather low than high, so as not to miss the vital organs. If you fire when he is facing you, aim at the middle of his chest. Keep firing until he is down is the only good rule.

STILL-HUNTING

"There is no grander sport," says Theodore Roosevelt, "than still-hunting the moose, whether in the vast pine and birch forests of the Northeast, or among the stupendous mountain masses of the Rockies," a sentiment in which every experienced hunter must concur. If you have won your master's degree by laying low the deer or the caribou, here is your chance to become a "doctor" in the faculty of still-hunting. You must put in practice every rule you have been taught and you must add a few new ones. The chief reasons for this difficulty in still-hunting the moose lie in the great beast's abnormal senses of hearing and smell, and in the fact that the hunter must for the greatest part of the time work in thick woods, most difficult to penetrate without noise and too dense to see the quarry until very near it. It is easy to lay down a general plan of campaign, but the thousand and one little rules which must be applied on the spot, according to the momentary situation, cannot be even catalogued.

A few words in regard to equipment.

One goes forth prepared to walk a long time, perhaps all day, over killing country. A drenching is possible, wet feet and legs beyond question. On the coldest day you will perspire while your ears tingle. The obvious solution is wool next the skin; not too thick, or you will be uncomfortably hot. Two or three pairs of socks may be worn with moose-shanks (see *Personal Outfit*) or moccasins or larrigans. Larrigans, coming over the ankle, are better than moccasins as they do not so easily fill with water, mud, and snow, and do not come off. Knee-high boots with mocca-

sin feet are good though often heavy, and every ounce tells in an all-day tramp. If worn the trousers or stockings should be drawn over the uppers, as leather is too noisy. For the same reason no other part of the hunter's dress should be of any material that makes a sound when scraped against trees, brush, or rocks. Nails in boots, canvas of all varieties, rubber (except perhaps for soles), etc., must be tabooed. Knitted mittens are best in cold weather, as they are kept warm by the heat of the hands even when wet, which they usually are in still-hunting.

A lunch sufficient for the day, and of a character not easily damaged by the wet, must be taken along, as well as the water-proof matchbox, the hunting-knife, and a dozen cartridges (or a half-dozen besides those in the magazine of the rifle), not carried loose in the pocket, where they will rattle, but in the loops of the belt or some other quiet manner. One of the party, the hunter of the day, takes the lead, the others, unless otherwise directed, following in single file. It is best that nobody, excepting perhaps the leader, should carry a cartridge in his rifle-barrel as long as the members of the party are grouped near together.

Like the "caller," though to a less extent, the still-hunter is dependent upon the weather. The elements must be more or less in uproar, in order to swallow up the sound of his awkward human going, before he ventures forth with any hope of "creeping on" a moose. A breezy morning after a light snow-storm is the ideal condition. The direction of the wind is noted and signs of a yard are sought, such as fresh tracks, dung, and browsing. Unless fresh tracks are found hunters usually look for browsing (tree-croppings) that is not over a day or two old,

which will indicate that the locality is part of a yard, *i. e.* that moose are not very far off. In that case the wind tells the hunter about the direction in which to seek his quarry, for moose, in a general way, remain near the leeward limit of the yard. The time of day and the weather will indicate whether the moose is likely to be lying down in a swamp or out in the sun on the barren, or feeding. The probabilities having thus been determined, the approach is begun, up or across wind, of course. Every man goes as noiselessly as he may. No use of tobacco is permitted and talking should be limited to the whispered directions of the leader. No chances of snapping twigs or breaking through old logs are taken. Bushes are quietly put aside with the free hand. Each man steps in the tracks of the man ahead unless he can obviously improve on them—in case, for example, the man in front plants his foot on a slippery or treacherous place. The moose may be but a hundred yards away; no man can tell, for their general habits cannot be relied upon absolutely. It will in most cases feed and travel with the wind; it will lie down during the noon hours; but there are many exceptions to these rules. Nevertheless it is well to go round, if the wind will permit, as it usually will, and find the leeward limit of the yard. The advance then may be straight ahead, but more likely zigzag or with frequent right-angle cuts, especially if the course of the animal is uncertain. The object is to make sure that the moose is still ahead of the hunt, and has not circled off to one side or the other, in which case the hunters might soon be to windward of the moose, which would get the scent and the hunt would be up for that day.

Photograph by John S. Perry

A BREAK FOR LIBERTY. BULL MOOSE IN SPENCER POND, MAINE (ANTLERS IN VELVET)

The novice will, of course, hardly possess the temerity to try hunting moose alone. He needs a good guide, and, while taking a few lessons of this master, he will perhaps learn the faster for the above synopsis of the grammar of the art.

WOUNDED MOOSE

Most old hunters recommend that wounded moose should not be followed unless the wound is apparently fatal; for, if slightly hurt, the animal will run too fast and far to be overtaken. If not pursued, however, it very often lies down, and the wound may bleed to such an extent, or cause such stiffness, that the animal can be found next morning in so weak a condition as to prevent its escape. The severer the wound the more likely is this to occur. I lost a fine moose once by following it too soon. The shot was too long for certainty (400 yards in a thin mist), but there was such a flow of blood that I was convinced I should overtake the moose in a short time. In fact as I entered a swamp I heard the animal travelling not far in advance, and I pressed forward in excitement. Had I stopped to think I would have known that I might better wait until the next day, for the moose had had a good start of me, and the fact that I had come up with it could only mean that the wound was severe enough to cause it to stop and probably lie down, getting up again only when it heard me. Had I waited some hours the quarry would very likely have been mine, but as it was I never saw it again, and had it not been that it ran into another party of hunters and was killed by them I should have had a possible lingering death on my

conscience. This is but one of very many such instances that will occur to experienced hunters.

BUTCHERING

(See also under *Deer-Hunting*.) Mr. Kephart says, "If a complete job of butchering is to be done [elk or moose], there must be a horse, or several men with a rope, to elevate the body." Some pretty good jobs of butchering are done in the Maritime Provinces and in Maine, and it is needless to say that no horse is available, and that the butchering is almost invariably done on the ground, a moose weighing anywhere from 700 pounds upwards, usually about 850 or more. Proceed as for a deer, and be sure to cut round the neck way down to the shoulders, to allow enough skin for the taxidermist. The head skin is removed after making a cut from the shoulders up the back of the neck to a point about three inches behind the antlers (or between the ears) and then cuts from that point diagonally to each antler-base and round the antler. (Figure 68.) Cut the ear cartileges close to the skull, and be careful not to injure the inner and outer skins of the eyelids. Cut round the tops of the gums and the lining of the nostrils. Sever the head at the last vertebra. Take out the brain and scrape the skull clean of all flesh, then dry. Tie the lower jaw to the skull, to prevent its loss. The scalp must be cleaned of flesh and fat, rubbed with salt, and folded up over night in a

FIG. 68.—Moose-Head Showing Cutting Lines

cool place. In the morning open and salt again; then dry and keep from fly-blows. The hide may be cleaned and salted. It should not be allowed to get wet. Moose-hide is less valuable than buckskin or caribou-hide, but the skin makes a good rug for the cabin floor. Antlers are measured between the two points farthest from each other, but at right angles with the backbone of the animal and not diagonally across. The length and breadth of the pads are also measured. (See page 359.)

Bibliography

Many sporting books contain accounts of moose-hunting, among them T. Roosevelt's *Wilderness Hunter*, Mr. Selous's *Hunting Trips in North America*, and others, but I know of no book that treats of the subject fully and systematically.

CHAPTER XV

DEER-HUNTING

THE Virginia or White-tail deer (*Odocoileus virginianus*) is the most widely distributed of our big game, and hence the best-known and most hunted. It is also the most beautiful in form and graceful in movement. It is by far the wariest deer on the American continent. It is found in most of the northern United States and in Canada, but is commonest in Maine, northern New York, Vermont, Minnesota, Montana, Michigan, Ontario, and parts of New Brunswick. With certain dwarf varieties of the White-tail inhabiting the Southern States we have no concern here.

Description

The doe usually gives birth to one fawn in May, a beautiful little spotted creature weighing about 4½ pounds. The adult buck weighs about 200 pounds, though large ones range up to 280. "A large buck stands 36 inches high at the shoulders, is 53 inches in length of head and body, its tail is 7 inches long to the end of the vertebræ, and 5 inches more to the end of the hair. A fairly large pair of antlers from central Montana are 23½ inches in length from burr to tip of beam, spread 18 inches, and have 13 points." (Hornaday.)

The coat is reddish in summer, when the antlers are in velvet, but changes to a "mottled brown-

grey" in autumn and winter, with lighter tints below. The tail, from which this deer derives its popular name, is long, wedge-shaped and bushy, white in colour underneath and round the edges above. This "flag" is elevated when the animal is alarmed, and is a well-known sign to sportsmen, meaning that the deer is on the jump and aimed for the next county!

Like other deer the White-tail mates in early autumn, which is also the time of the open hunting-season. It is worthy of comment that, while we protect almost all other animals and birds in the mating season, we fail to do this in the case of the pride of our fauna, the *Cervidæ*.

The antlers of the White-tail are small, but beautifully shaped and poised. Spikes are usually grown the first year, after which points, or snags, appear; not one for each year of the deer's growth, as was formerly believed, but according to the animal's vigour, though of course the general rule holds good that the more numerous the points the older the deer. The White-tail buck has been known to carry 78 points with a spread of 26½ inches, but a pair of antlers bearing from 4 to 8 points on each beam is far handsomer. Monstrosities are frequent in old deer, and many interlocked pairs of antlers have been found, the result of fights fatal to both antagonists.

Habits

Living herded together in small companies, or even a single pair with perhaps a faun of the year before, the deer pass the winter in "yards," partially pathed and trampled-down tracts where there is good feed of evergreens, moss, twigs, and dry grass. When the snow disappears the bucks

and the does separate, going their own ways singly or in twos and threes. They fatten on the new and rich verdure, the winter coat comes off and is replaced by the sleek summer dress. The fawn is born towards the middle of May, in thick cover. One fawn is the rule if it is the first-born, afterwards one or two, and even (very rarely) three. The fawn remains where it is born for some weeks (unlike the moose and wapiti). Its colour is a rich brown ornamented with rows of white spots. After the fourth or fifth week the fawn follows its mother and develops rapidly. Deer feed very early in the day and towards and through the evening. About noon in the north woods they visit a drinking-place, though the daily drink may be postponed to evening near settlements. On moonlit nights they are almost sure to be abroad. The fawn loses its spots in September and thereafter shifts for itself so far as food is concerned, for the mother will nurse it no longer. But though weaned they continue to follow the dam, the young bucks usually for a single year, the females for two. The older young are kept at a distance, however, while their baby brethren are being nursed. In January the antlers are shed; sooner if very vigorous, later if weak. The new antlers begin to show as soft knobs in a few weeks after the old ones are dropped, and are full-grown by August. Almost to the last they are rather soft, have blood-vessels and nerves, and are therefore subject to frequent accidents and deformations.

In regard to clothing and accoutrements the reader is referred to the chapter on *Moose-Hunting*, as the requirements for still-hunting that animal are practically identical with deer-hunting necessities. A

typical costume may consist of felt hat, soft silk neckerchief, thin pure-woollen underwear, grey woollen shirt, flannel-lined brown corded waistcoat with deep pockets, neutral-coloured coat or sweater (in very cold weather both), belt (with dull buckle) on which are fastened hunting-knife sheath and cartridge loops, soft but stout woollen trousers tucked into heavy woollen stockings or socks, and double-soled moccasins. Knickerbockers with woollen leggings are also good. If high-legged larrigans are worn they must be covered with the trousers or stockings, as otherwise the underbrush scratches against them noisily. In cold weather a pair of thick knit woollen gloves or mittens are a necessity, though some prefer buckskin. I have found the latter cold when wet, while the wool is always warm. The emergency lunch and the waterproof matchbox should always be in the pocket.

Outfit

A binocular in the north woods is generally more bother than worth, except in bare, mountainous regions, or in Newfoundland.

A big, heavy bullet is not so necessary in shooting deer as moose or bear, and many sportsmen incline to the use of such rifles as the Springfield .30, the Savage .303, or the Winchester .30 or .33, of course with soft-nosed bullets. But a large class will decidedly prefer a bigger calibre, such as the .45-.70 and .35 Winchester or the automatic .35. The only objection of any moment to the use of the heavier bullets is that they often spoil much meat; but the vital parts of the animal do not lie under the best meat, and even if they did the loss of a little meat would be a small price to pay for the

Rifles

sudden and easy death of the quarry. In case a small calibre is used the new Hoxie cartridge, which has a quickly expanding bullet, may be recommended.

Loop-straps, with room for a dozen cartridges, and easily fastened to the belt, can be had of the dealers. **Cartridges** Carried in this manner the cartridges do not rattle noisily as when carried in the pocket. You will have from four to ten cartridges in your rifle-magazine besides the extra dozen, enough to kill a whole herd of deer.

Before starting out, practice with your rifle upon objects in different lights and at different elevations. **Sighting** For running deer a barrel running down hill is a good target. Do not try to follow the barrel with your rifle, but aim at some point that will be traversed by the barrel and shoot when the barrel crosses it. Sight your rifle for 80 yards; that is, set the sights so that, using a natural bead, neither too fine nor too coarse, the rifle will shoot neither over nor under. Thus sighted it will be found that you can shoot point-blank, as it is called, at game anywhere between distances of 30 to 150 yards without changing the sights, by taking a finer or coarser bead, as the case may be, the inch or two difference in the flight of the bullet being no great matter.

Practice shooting both offhand and with a rest, but when drawing a bead on game take every advan- **Shooting at Game** tage. Kneel or take a good rest against a tree or over a rock if the situation will allow. Be expeditious, but deliberate. Never take

a pot-shot at a patch of colour in the bush; wait for a better opportunity and perhaps refrain from slaying a fellow-man.

Carry your weapon in the hollow of your arm, pointing at the ground, or, if someone is in front, off to one side; or over the shoulder, but the usual method, with the trigger-guard down, is dangerous to the front sight, as it is very apt to come in sharp contact with limbs and be knocked out of plumb. Rather turn the under side of the rifle up, or, if leading, carry the stock over the shoulder and hold the rifle by the barrel. Carry the barrel empty and throw in a cartridge only when there is an actual probability of seeing game. Then carry the hammer at half-cock, or, in the case of a hammerless, with the safety-catch on. Get into the excellent habit of looking every few minutes to see that all is right with your rifle. More than once in my life I have discovered, with something of a shock, that my rifle was at full-cock, probably by being scraped by a branch. Remember that guns will go off, in spite of the greatest care. See to it that, when they do, they shall not be pointed in the direction of your companions. For the same reason of caution never, under any provocation or temptation, shoot unless you can see plainly what you are shooting at. It is worse to take a snap-shot and wound a deer without getting it than to miss entirely, and you may also find that your mark was a man, in which case go hang yourself at once and rid the world of a criminal fool. There was a time in Maine not so long since when I would have worn a red-and-white striped sweater while hunting deer, or stay at home.

Carrying the Rifle

The deer-hunting season is in the autumn, the legal period for killing being in the principal States in 1907 as follows: Maine, October 1st to December 15th; Vermont, October 21st to October 27th inclusive; New Hampshire, October 1st to December 1st; New York (with local exceptions), September 15th to November 1st; Michigan, November 10th to December 1st; Minnesota and Wisconsin, November 10th to December 1st; Montana, September 1st to December 15th; Quebec, September 1st to January 1st; Ontario, November 1st to November 15th; New Brunswick, September 15th to December 1st.

Season

The legal seasons in other districts, as well as local exceptions and changes in the game laws, may be ascertained from *Game Laws in Brief*, published periodically by *Forest and Stream*, New York city ($.25.)

Hunting deer cannot be learned from this or any other book, and the novice who goes forth for the first time into the woods without a competent guide is a very foolish man if he thinks to get a shot at a deer. The following remarks are therefore only to be considered as containing the A B C of the art, general maxims upon which to build success with the aid of experience.

Methods of Hunting

Since hounding (chasing with dogs), crusting (pursuing over crusted snow, through which the small feet of the deer break), and jacking (night-shooting by means of the dark lantern, or "jack") have long since rightly become illegal, the only method now practised in the north country is still-hunting, which may be distinguished from stalking (the usual Eng-

lish word) by the fact that it takes place not in open, but in forest country, thus being different from the chase of the British *cervidæ* or of most of our own in the West. In general the hints on still-hunting the moose may be followed. Arrived on the ground, evidence of the recent presence of deer is sought in the shape of fresh tracks and droppings, browsing, rubbings on trees, etc., and the game is then approached across or against the wind. On a still day one might better stay at home, or when the snow has a noisy crust. Smoking is bad, in spite of the assurance of some guides to the contrary, nor should the guide chew tobacco; for, if I can smell a chew ten yards, a deer can nose it at ten times that distance, unless the wind is very strong against the hunter. All talking and rattling of accoutrements must be avoided. The breaking of even a large stick may not actually "jump" a deer, being a natural noise of the forest, but it will certainly put it on its guard for a minute; and, should such a thing happen under the moccasin, it is well to keep perfectly still for at least that period, for the deer's keen ears will be turned in your direction, and, should any additional noise be heard, it will be off at once. The freshness of the signs will indicate in a general way the nearness of the game, and of course cautiousness should increase with propinquity. In following tracks go as swiftly as may be, but not so fast as to make false steps and allow hurry to dull the senses. A deer's track is very like those of the hog and sheep. Study them all, and learn to observe all tracks in the country, even your own, in order to become expert in the judgment of their freshness. In trailing, since you have only the perceptions of yourself or your guide to

trust, great care must be taken when the game seems very near. When you finally catch sight of it shoot without delay if the shot is a clear one and not too far. Otherwise try to get nearer. The white man's tendency is to shoot at very first sight of the quarry, even if obscured by bushes. Deciding this point is, of course, one of the most important parts of deer-hunting, and it depends upon coolness and judgment. Practically it is a matter of temperament, but the impulsive man loses the most game. As a rule aim at some particular part of the animal and not at the whole body. If the deer is facing or partly facing you, shoot it through the neck, so that the bullet will range back through vital parts or break the neck. If side-on, strike behind the shoulder, so that heart or lungs will be pierced. Hit low rather than high, or the vitals, except the spine, may be be missed.

Handling a Wounded Deer

Says Van Dyke, "The first thing to do when a deer is wounded is generally to do nothing." This is of course in case another good shot is not available, for, as in moose-hunting, the cardinal rule is to shoot as long as the quarry is on its legs. But if it starts to run after being hit do not follow, for, even if very badly hurt, its fear will keep it running until beyond finding in case of pursual, while, if not followed, it is most likely to lie down shortly and become so stiff, or lose so much blood, that it is easily found and put out of its misery after several hours, or, if wounded at night, then next morning. When you do start on its trail proceed as if it were perfectly sound, especially if the trail shows a decreasing flow of blood.

A deer's ears are much keener than its eyes, and, if the huntsmen keep perfectly motionless upon the appearance of a deer, it will frequently pass slowly without taking alarm, unless it should get the man's scent. In shooting at a running deer be careful not to fire too high, as the deer is then nearer the ground than when standing; besides, the general tendency of novices is to overshoot. A favourite ruse of the old hunter was to take a stand on a runway, or regular path used by the deer going to water, or at the drinking-place itself, or again at a "salt-lick," a spot upon which salt has been heaped to attract the deer, which are very fond of it. The sportsmanship of these manœuvres is extremely questionable.

When a deer is down do not be too eager to finish him with the knife; be on the safe side and give him another shot in heart, brain, or spine.

Packing Deer

All game should be bled as soon as shot, in order to make it keep fresh longer. In many cases the animal will have bled sufficiently through the wound, but if this, in the hunter's judgment, has not taken place, make a thrust with the knife into the breast at its point and give the knife a couple of turns. A moose is usually skinned and cut up at once, but, unless very far from camp, the carcass of a deer is generally packed thither, either single-handed, balancing the deer over the shoulders and holding by the feet, or, better, by two men on a litter, or lashed to a pole, or, finally, by dragging on a bush. Before starting there is, however, one imperative duty, that of paunching the quarry, to avoid early putrefaction and to lighten the burden. If packed single-handed the best way

is to tie legs and head together by means of a rope running through the mouth, lower jaw and the four gambrels. The loop thus formed fits well over the shoulders. A litter for two men is quickly made of two saplings with cross-pieces every two feet or less. The deer should be securely lashed to it. Fore and hind legs may be lashed to a pole, carried on the men's shoulders. A small animal may be tied to the top of a bush and dragged, head foremost, to camp over snow or a particularly smooth trail. A pack-horse would make things easy, but the north woods knows them not, a few Western districts aside. The brush is too thick.

In case there is no time to skin and cut up the carcass before returning to camp, hang it up out of reach of bears on a pole resting between the limbs of two trees. In case you are alone and the deer is heavy, bend down a sapling that takes all your strength to curve over, and attach the head to the trimmed-off top by means of a withe, a stout spruce root, or your hunting-belt. You have previously to this constructed a tripod of poles forked at the top, and upon this you now proceed to hang up the carcass, attaching the loop to the forks. The spring of the sapling will help raise the deer, and, by raising first one pole and then the other, a sufficient elevation can be attained. This is, however, by no means so easy to do as it reads, and a duffer had best content himself with burying his quarry under boughs, with perhaps a tripod of poles or a handkerchief or the blown-up bladder on a stick over it, to frighten off wild marauders.

If hung up unskinned a smudge is dangerous to the

hide and practically useless, unless tended constantly. It is my practice to carry with me three or four yards of cheesecloth (which has been dipped in alum-water at home), and this I wrap closely round whatever parts of the animal I especially wish to preserve. If a round of venison is thus done up, preferably with a needle and thread, it is safe from fly-blows, which are the bane of hunters. If unskinned a head may also be kept clean in like manner. The cheesecloth takes up little more room than a napkin, and amply repays the small bulge in the coat-pocket. The usual way to protect skinned meat is to form as quickly as possible a thin layer of hard flesh on the outside, by exposing either to the sun or to a thick smudge made of green stuff, rotten wood, etc. The flesh will dry and harden quickly in the sun, but should be protected from the flies for the first fifteen minutes or more by the waving of a branch. The smudge method is better. If a smudge is left burning by itself great care should be taken to prevent its bursting into flame and spreading, by banking it with earth and stones and clearing a space about it of all inflammable material. In the thick woods do not risk leaving a smudge to take care of itself; in many places it is even against the law.

Fly-blows

In cutting up a deer's carcass it will be found most convenient to hang it up; by the head is best, as it will drain better, skin and cut better, and the head is not so apt to become soiled. But the usual way is to hang up by a stick thrust through the gambrel joints of the hind-legs. If not hung up the carcass should be so placed that the

Skinning and Cutting Up

head is higher than the tail. In skinning, the rule, if head and hide are regarded as of any value, is to make all incisions with the knife as few and inconspicuous as possible, and they should therefore be confined to the middle line of the under surface of the body and the inner side of the limbs. In case the head is to be mounted alone, as is usual, the first cut should begin where the neck joins the back and run in a circle downwards round the neck to the point of the breast and up on the other side. Be sure to cut far enough back, as the taxidermists are badly handicapped by a short neck. The whole head may now be removed to be skinned later, or the body may be skinned first. The better plan is the former, as it makes the carcass lighter, but this is, of course, only if the animal lies on the ground or hangs head-down. The hide is turned back and skinned round the circular incision as closely to the skull as possible, and the skull is then removed from the neck by means of the knife and hatchet or axe. Fold the loose neck-skin together as closely as possible and cover to prevent fly-blows. The carcass is then placed on its back (if on the ground) and a slit made up the middle of belly and breast and then continued downwards to the end of the tail, care being taken not to rupture the paunch, which would result in nastiness and stench. Lateral incisions should then be made beginning at the central cut and extending down each leg to the hoof, which may be left on if desired, in fact must be if the whole animal is to be mounted or the skin preserved in a museum. In such a case, of course, the head must not be severed from the body, and all the leg-bones must be kept. The skin and the as yet unskinned head are usually

taken to camp, where the head is prepared at leisure. This is done as follows: Make a cut through the skin along the cervical vertebræ to a point on a line between the antlers; then cut across this line to the antlers on each side and round each antler, keeping close to the base. (Another method is to stop the top cut between the ears and then make a cut from there diagonally to and round each antler, as for moose. (See Figure 68.) Skin to the ears, which are cut off close to the skull. "Turn the skin wrong-side-out over the head and proceed until you come to the eyes. Now work slowly with the knife, keeping close to the edge of the bony orbit, until you can see, through a thin membrane under your knife-edge, the dark portion of the eye. You may now cut fearlessly through this membrane and expose the eyeball. . . . Skin down to the edge of the nose, cut through the cartilage close to the bone, and cut down to where the upper lip joins the gum. Cut both lips away from the skull close to the bone all the way around the mouth, except directly in front of the incisors." (*Smithsonian instructions*, by Wm. T. Hornaday.) The skull should now be scraped, removing all flesh and soft cartilage, and the brain taken out through the vertebral opening. The skull and lower jaw may then be dried and tied together for the taxidermist. In skinning the body use your fist or hand to stretch the part under operation, and be sure not to cut through the skin. Always skin when the body is warm, or the work will be doubled.

As soon as possible after being taken off the skin of the head (and body too if to be preserved) should be thoroughly rubbed with salt (fine is better than

coarse), a quantity of which should be in every hunting camp for this express purpose. Roll up the skin and let it lie over night. Rub in more salt in the morning and dry out without the aid of sun or fire. The best way is to hang up high in the shade. Keep from the wet. All skins to be mounted should be in the taxidermist's hands as soon as possible.

Preserving Skins

The National Museum authorities recommend immersing skins in a solution of salt and alum (proportion: to 1 gallon water, 1 pint alum and 1 quart salt) brought to a boil and cooled to milk-warmth. This is practically impossible in the woods, unless the expedition has been fitted out for museum purposes, and for ordinary mounting is unnecessary.

For Museums

The first thing to do in cutting up the carcass is to free the body from all the internal organs. Cut free the diaphragm from both sides and roll out the viscera, aiding with the knife where necessary. The sternum is then cut through with the axe and the chest organs pulled out with the hands, the knife aiding. The pelvis is then divided with the axe, the four quarters removed, and the meat is ready for transportation.

Butchering

The classic authority on deer-hunting is *The Still-hunter*, by Theodore S. Van Dyke, which should be the first book bought by the novice, and which will be found to contain about all that has been written on the subject before or since its publication, and has been called by a competent English writer "the best book ever written by an American." There is no end to the other books

Bibliography

on deer-hunting, but the reader may begin additions to his library with *The Deer Family*, by T. Roosevelt, T. S. Van Dyke, and others. An excellent descriptive article on deer is that by E. Thompson Seton in *Scribner's Magazine* for September, 1906.

MEASURING RULES

For large animal, measure:

Body

Height at shoulder, from middle (not point) of hoof, holding leg as if it were supporting body, to top of shoulder (skin, not hair) in a straight line.

Length of Head and Body from root of tail to end of nose; *tail* from base to end of vertebræ.

Girth directly behind forelegs.

Depth of Body, from top of shoulders in a straight (not curved) line to lowest point of breast directly behind forelegs.

Circumference of neck half way between ears and shoulders, close to skin.

Antlers

Length on Outer Curve, starting tape at base of horn (lowest point) and following curves to the tip.

Greatest spread from outside to outside where the antlers spread widest.

Distance between two tips farthest apart.

Circumference at base of antler round largest diameter.

Width of Palmation at widest part. A *point* must be long enough to hang something on.

Weight must be stated as either with entire skull or only skull-piece.

(The above rules are paraphrased from Hornaday's *American Natural History*.)

CHAPTER XVI

CARIBOU-HUNTING

THIS American cousin of the north-European reindeer has a range extending from Maine and Newfoundland northward to Hudson Bay and then generally north-westward to the Pacific, where it is found from British Columbia northward into Alaska. There are two general varieties, the Woodland (*Rangifer caribou*) and the Barren-Ground or Artic (*Rangifer arcticus*), these names describing their habitats; both are divided into several subspecies about which the experts are yet quarrelling. The woodland animal is somewhat heavier, weighing from 250 to 400 pounds. Its fine large antlers are shorter in the main beam than those of the barren-ground species, but are more palmated, and, as Mr. Hornaday remarks, have "a treetop appearance," those of the barren-ground caribou being slimmer and having an "arm-chair appearance." The woodland kind is warier than the other, but both are dull beasts compared with moose or deer. The Newfoundland species (*R. terraenovae*) is much lighter in colour than the continental woodland caribou. A good-sized caribou stands about four feet high at the shoulders. The general colour is dark grey with white under-parts, changing to whitish in winter; some of the Western varieties have blackish heads.

The hoofs are very large and loosely jointed, so that they spread and form veritable snowshoes, enabling the caribou to travel easily in snow that would render other deer quite helpless. These hoofs clack as the animal moves about. The caribou mates in the early autumn, at which season it is lawful to kill it —a very unwise privilege, which should be legally withdrawn, as in the case of all other *Cervidæ*.

Incredible tales are told of the tameness of caribou, and, after reading many of the stories of Selous and other experienced caribou-hunters, those of us who have done little or none of it wonder what pleasure a sportsman can take in such a chase. As Mr. Elliot, in *The Deer Family*, aptly says, after describing the positions taken up in still-hunting, "pursuit (if it can be so called) of this deer at such times and in such places cannot be considered either a pleasure or within the true meaning of sportsmanship. If the caribou should wander that way, ... a point-blank shot at a few paces is afforded, requiring about as much skill to bring down the quarry as it would to shoot a cow in a barnyard." Mr. Selous gives instances of caribou passing within a few feet of him and looking straight at him without taking alarm. One legal but disgraceful manner of hunting them in Newfoundland is to take advantage of their annual migration from the northern to the southern part of the island, which, since the railway traverses the whole colony from east to west, must cross the rails. The huntsmen therefore post themselves near any of the stations in the caribou sections, make themselves comfortable, and shoot down whatever animals happen to come that way. The more

Methods of Hunting

sportsmanlike method is stalking. Man and guide go out upon the barrens, scan the territory far and near with a powerful glass, and, when a herd has been discovered, approach it near enough to pick out any stag that appears to have antlers worth having. The stag is then regularly stalked until the stalker is within range, taking advantage of any kind of cover offered, and, of course, being careful to advance against or across the wind.

The outfit for caribou-hunting need not differ much from that used for other deer. Mr. Selous uses small-bore rifles, but he is evidently an extra-good shot.

Biblio-graphy

Those intending to shoot caribou, whether in Newfoundland or the North-west, should unfailingly possess Mr. Selous's late book, *Hunting Trips in North America*. Other good works on the subject are Mr. Elliot's chapter in *The Deer Family*, contained in the American Sportsman's Library, and Mr. Seton's article in *Scribner's Magazine* for April, 1906.

CHAPTER XVII

BIG GAME OF THE NORTH-WEST—ELK, ANTELOPE, MOUNTAIN SHEEP, MOUNTAIN GOAT, GRIZZLY BEAR, COUGAR.

SINCE the animals named in this chapter are not found in the north-eastern portion of the continent within the confines of what is usually called the north woods, the following brief notices of them, together with references to the best books treating of them, will be sufficient for the purposes of this manual.

THE ELK

The Wapiti, or Round-horned Elk (*Cervus canadensis*) is unquestionably the largest round-horned deer in the world, as well as the most stately of all the deer family. Says Theodore Roosevelt (*The Deer Family*): "A full-grown bull is as big as a steer. The antlers are the most magnificent trophy yielded by any game animal of America, save the giant Alaskan moose. When full-grown they are normally of twelve tines; . . . Antlers over fifty inches in length are large; if over sixty, they are gigantic," (The record is 67½.) Though not so long since native to the whole northern part of the United States from the Pacific to the Appalachian mountain system, and lingering in Pennsylvania as late as the middle of the

nineteenth century, the elk has decreased in numbers nearly as fast as the now almost extinct bison; and its range is at present restricted to Colorado, Wyoming, Idaho, Montana, Alberta, and portions of North Dakota, Minnesota, and Manitoba. On the Pacific coast a separate variety exists. At present the elk "reaches its highest physical development on the backbone of the continent, between north-western Wyoming and southern Colorado." (Hornaday.) The weight of a large bull elk is about 700 pounds. The height at the shoulders is about 56½ inches, and the length of head, body, and tail about 86½ inches. Mr. Hornaday gives a convenient rule for estimating the weight of large members of the deer tribe that cannot be placed on the scales. It is to ascertain the dressed weight in pounds, add to it five ciphers, and divide by 78,612. The result will be the live weight of the animal. Elk-hunting to-day means an elaborate pack-outfit and is very expensive. Neither is the sport generally to be compared with the chase of most other big game, on account of its habit of herding and the fits of stupid panic that are apt to affect even whole herds, during which they seem unable to escape and can be shot down like tame sheep. This is, of course, by no means always the case. Mr. Roosevelt considers the venison of the wapiti to be the best of all wild game.

Bibliography

The Deer Family, by T. Roosevelt, in the American Sportsman's Library; *Hunting*, in Scribner's Out of Door Library; *The Big Game of North America*, edited by G. O. Shields.

In regard to packing and pack-trains the reader should consult *Camp and Trail*, by S. E. White.

THE PRONG-HORN ANTELOPE

The Prong-horn Antelope (*Antilocapra americana*) is found on the Pacific slope and along the Rocky Mountain regions from Mexico to Assiniboia. In the northern United States it is found mostly in Montana and Wyoming. No better guide to the sport of stalking antelope can be had than is contained in Mr. Roosevelt's *The Deer Family*, while E. Thompson Seton has described the animal very thoroughly in *Scribner's Magazine* for July, 1906.

THE MOUNTAIN SHEEP

There are six varieties of Mountain Sheep in America, inhabiting nearly the whole Rocky Mountain system from Mexico to and including Alaska, and California, the longest known and most celebrated being the Bighorn Sheep (*Ovis canadensis*). President Roosevelt considers the chase of the Bighorn "the manliest of all our sports," because it "means heart-breaking fatigue for any but the strongest and hardiest," for it must be sought in its mountain fastnesses, where it lives and grows fat even in winter, scorning even then to follow the elk and other animals to lower altitudes. The general colour of the bighorn "is grey-brown, with a large white or cream-yellow patch on the hind quarters, completely surrounding the tail. . . . A large ram . . . stood 40 inches high at the shoulders, was 58 inches in length from end of nose to root of tail; its tail was 3 inches long, and its weight was about 300 pounds." (Hornaday.) The horns are massive and curved, the largest known measurements being 18½ inches in circumference, and 52½ inches in length on the curve.

It will be seen by Mr. Roosevelt's hint that none but the soundest of limb and lung should attempt the hunt of the bighorn. A .30-caliber rifle is big enough and a binocular is a necessity.

Consult G. O. Shields's paper in *The Big Game of North America.*

THE ROCKY MOUNTAIN GOAT

The chase of this animal (*Ore amnos montanus*) closely resembles that of the Mountain Sheep. No one should start on an expedition after this animal without first reading Mr. W. T. Hornaday's *Camp-Fires in the Canadian Rockies*, as he is *par excellence* the authority on the subject. *The Big Game of North America* may also be consulted with profit.

THE GRIZZLY BEAR

The famous Grizzly (*Ursus horribilis*), fiercest of all the bear family, is now, according to Mr. Hornaday, a rare animal in the United States except in the Yellowstone Park and the Clearwater Mountains of Idaho, "and so difficult to find that it is almost useless to seek it this side of British Columbia." Thence northwards into Alaska he still rules the wilderness, all other animals giving him a wide berth.

His name comes from the silvery grey colour with which his brown coat is tipped, which has also earned him the more popular cognomen "silver-tip." The size and weight of most bears are exaggerated, and a big one will hardly weigh over 800 pounds, though heavier individuals have been killed, 1150 pounds being the limit.

The grizzly has always enjoyed a huge reputation

for aggressiveness, which, in view of the assured facts that he can kill a steer and even attacks the moose, seems fairly well established. Towards man, however, his conduct has suffered a change since the introduction of the high-power repeating rifle, against which he has little show for his life. Unless cornered he will always take the back track from a man. A .45 calibre or an 1895 .405 is the best medicine for him. The sport is dangerous enough, however, as Old Ephraim is the most tenacious of life of all animals on this continent, and will "absorb" a lot of lead without flinching.

Read Roosevelt's *The Wilderness Hunter; The Big Game of North America;* Hornaday's *Camp-Fires in the Canadian Rockies;* vol. i. of C. Phillipps-Wolley's *Big Game Shooting*, in the Badminton Library. **Bibliography**

THE COUGAR

The Cougar or Puma (*Felis concolor*), also called Mountain-lion, Panther, Painter, Indian Devil, etc., was once common in northern New England, New York, and the Maritime Provinces, but has receded before the march of civilisation, and is now found only in the great mountain ranges of the West, in Wyoming and Montana, Florida, British Columbia, and very rarely in the Adirondacks. In spite of the hair-raising tales with which the old Maine pioneers loved to thrill their youthful hearers (and many a "creep" have I taken to bed with me on account of them!) cougars will nearly always run even from a small dog, and the method of hunting them is to chase and tree them by means of dogs, and then to drop them

from their perch with a small-calibre bullet. It is the best climber of the cat family, which accounts for its predilection to "take to the tall timber" when chased. Eight feet is about the limit of length of a cougar's body and tail, and a big one might weigh 225 pounds. Its colour is brownish grey.

President Roosevelt's *The Wilderness Hunter* will make the reader better acquainted with this big cat, which is the only long-tailed specimen of its family occurring north of the Mexican border-regions.

General Bibliography

G. B. Grinnell's *American Big Game in its Haunts* may be recommended to those interested in any kind of large American game. Just out is *Bison, Musk-ox, Sheep and Goat Family*, in the American Sportsman's Library. The several articles by Mr. E. T. Seton mentioned in this chapter will shortly appear in book form (title not yet chosen), and should form a valuable work.

CHAPTER XVIII

GAME BIRDS

NOBODY goes into the north woods camping with the especial purpose of bird-shooting according to the methods of the sporting guild. Nevertheless there are many who frequent hostelries on the outskirts of the wilderness, where these, as well as native methods, may be employed; for which reason it seems proper to include in this manual a short account of the game birds likely to be met with in our chosen territory, with some hints as to equipment.

As we take anything that comes to us, an all-round gun is what is wanted, and that is a 12-gauge, 30-inch-barrel, hammerless ejector, costing as much as you can afford. If you are sure of seeing nothing larger than grouse, 28-inch barrels will be long enough. I have even shot ducks, and many of them, with a light 26-inch-barrel gun, sweet to carry and handle. Have a case for it, and a jointed cleaning-rod and good oil. In regard to shooting consult the chapter on *Sporting Firearms*.

The north woods camper will hardly ever take a dog with him, unless going to a place where there is good shooting in fairly open country. If he does, he has his choice between a setter and a pointer, both grand dogs, with perfect noses for pointing their game. For the north country I prefer a setter, for, while the

pointer stands hot weather a little better and has no shaggy coat to catch the burs, hot weather does not bother us much in the north, and the setter's thick coat protects him from the cruel wilderness thorns and snags that hurt the pointer grievously. Whichever breed is chosen, be sure of one thing—that the dog is not a wide ranger; or you will be constantly losing him in the brush, with the annoying feeling that things are happening and you are not "in it." The dog should wear a bell on his collar to make known his whereabouts at all times, and he should be trained to obey his master's whistle and voice.

Concerning dogs, consult *The Sporting Dog*, in the American Sportsman's Library, and Mr. S. T. Hammond's *Training vs. Breaking.*

THE RUFFED GROUSE

This magnificent grouse (*Bonasa umbellus*) is ***the*** game bird of the north woods, with beautifully marked brown, black, and grey plumage, the distinctive features being the broad black band across the tail and the black ruff round the neck, which is elevated when the bird struts or "drums." This sound is a very characteristic one and is made by the bird's wings beating the air and not, as formerly thought, a hollow log. Why the bird drums is uncertain; it is very likely for the purpose of generally "showing his independence" and posing for his mate. It is certain that the drumming is not confined to the mating season nor to any time of day, for as I write these lines, at half past ten o'clock of an October evening, I can hear an old cock drumming from time to time across the bay from my cabin. The ruffed

grouse, or "partridge," as it is universally called in New England and Canada (sometimes "birch-partridge," to distinguish it from the "spruce-partridge" or Canada grouse), is non-migratory, and lays about a dozen eggs in a nest on the ground in the spring. It lives in thick timber, often venturing into woodland roads and old "slashings" (where the timber has been cut off), but almost never into the fields. In the early morning it may be seen in the trees, where it usually roosts; later it feeds on the ground, often taking to the trees when startled. In dry weather it may often be found in swamps and other moist places, while in wet weather it seems to keep rather to the high ground. It is always a question just where to seek it. The local authorities should be consulted. Meanwhile the forest tourist will mostly run upon it in the old logging-roads.

There are three reasons why the ruffed grouse is the hardest bird we have to kill on the wing. In the first place it gets up with a tremendous commotion and goes at a furious pace; secondly, it never loses an instant's time in putting a tree or other cover between itself and its enemy; and, thirdly, more than half the time it will not stand, but will run off sometimes twenty or thirty yards before stopping. This last characteristic is particularly annoying when shooting over dogs, which are often entirely nonplussed at such conduct; in fact dogs are frequently useless in heavy cover. A cocker spaniel, which flushes the birds and barks as they rise, is sometimes preferred. To me shooting the ruffed grouse is the acme of American birding, for the reason that it represents the exact antithesis of European sport over dogs or even in the drives, though the shots

themselves are often very difficult during the latter. A half-dozen birds flushed from cover and shot fairly on the wing is a big bag in the north woods, and it is likely that not more than two of them will be what may be called easy shots. It has to be mighty quick, sometimes snap work. One of the most fascinating forms of shooting is still-hunting the "partridge" without a dog, though it is very tiresome if you hunt over birdless territory. The row the bird makes when it gets up suddenly is most disconcerting, and you have to cover it in a jiffy, or all is over. If you fire and miss it may fly clean out of the county, but if merely flushed it may be found again if followed up without delay. No. 8 or 7 shot may be used; the latter is better when the birds are strong.

Without doubt most grouse shot by camping parties are slaughtered on the ground or in trees. With this method no fault can be found so long as it is not called sport, but solely providing for the pot. The man who deliberately gives up all hope of broiled grouse in the woods merely because of the traditions of his open-country, sporting-club past, may be a moral hero, but whether he is wise or not is a question.

One form of ground and tree shooting is admitted by many to possess at least the elements of sportsmanship, namely, using a .22-calibre rifle.

CANADA GROUSE

This bird (*Dendragapus canadensis*), usually called "spruce-partridge" from the fact that it spoils the flavour of its flesh by a diet of conifer buds, is darker than its ruffed cousin, black being the ground tint of its plumage, picked out with white. A brilliant red

ring nearly encircles its eye. Another name is often given it, namely, "fool-hen," on account of its extraordinary indifference to danger. The curiosity of these birds seems to get the better of their discretion. Last summer I reached up and captured one in a trout landing-net. There are two good reasons for letting them alone. First, they are bad eating; and, secondly, the laws of most provinces protect them.

WILLOW GROUSE

This is a ptarmigan (*Lagopus lagopus*) found mostly, so far as our tourists are concerned, in Newfoundland. It is smaller than the other grouse, and is mottled grey and brown in summer and white in winter. Where not much pursued it is very tame, but affords good sport in the more hunted regions.

PARTRIDGE ("QUAIL")

The partridge, "Bob-white" (*Colinus virginianus*) or, in New England parlance, the "quail," is as good as non-existent in the north woods, though found along its southern line.

WOODCOCK

Of the numerous shore-birds, so called, that fine, delicious and mysterious specimen the woodcock (*Philohela minor*) is the only one with which we shall be likely to have much to do. It lives in moist regions, where it bores into the soft soil with its long bill for worms and grubs. Its big eyes and long legs and bill are familiar to all sportsmen, but it is curious that many country people who have seen it flit by all their lives are at a loss to name it when laid before them.

Only last autumn a friend of mine got into a perfect woodcock paradise, but when he called at a neighbouring farmhouse to get a drink of milk, the farmer, an old settler, answered, upon being asked if there were woodcock near by "Oh, yes, lots of 'em in the orchard," meaning woodpeckers. When he was shown the bag, shot mostly within a mile of his house, he said he 'd "never seen them birds before." Mr. Huntington tells of a similar experience in *Our Feathered Game*. It is characteristic of *Philohela's* mysterious ways. Small chance of his being potted on the ground. You will get him only if you go out after him, and with a dog. He will be found in pretty close cover and you have to shoot quickly. No. 9 shot is right, or No. 8 towards the end of the season.

An occasional *snipe* may be seen in the north woods, as well as *plovers* and especially *sandpipers*, but the camper will not go far out of his way for these, as they are not in sufficient abundance. Shore-birds are, generally speaking, more easily found in settled districts along the sea.

DUCKS

The tourist and big game hunter will often get a shot at a duck by concealing himself towards evening in a built or improvised "blind" on the shore of some lake, pond, or cove frequented by the birds. In some districts, not really in the wilderness, duck-hunting from proper blinds is practised. A dozen or more decoys of the breeds expected are distributed in front of the blinds or sink-boats, and some kind of a retriever, usually a more or less pure-bred spaniel, is an important ally. The black duck (*Anas obscura*)

of the north country is perhaps the wariest of his tribe, and tough too (until well cooked), for which reason the natives often use No. 2 shot, though No. 4 is the usual duck size. Farther west the delicious mallard can be had in great numbers, as well as many other varieties.

GEESE

It is a gala day when chance brings the camper face to gun with a fat Canada goose (*Branta canadensis*), and he wants No. BB shot in his cartridges. It is in the far north that geese are mostly met with, except in the west.

Bibliography

There are legions of good books on game-bird shooting. About as good as any is *Our Feathered Game*, by D. W. Huntington, which has the merit of being very comprehensive and up-to-date (1904) Other fine volumes are *The Water-fowl Family*, in the American Sportsman's Library; *Upland Game Birds* in the same library.

CHAPTER XIX

TRAPPING

It is taken for granted that my readers will not seriously take up the profession of trapping, but perhaps seek to increase the delights of forest life by setting a few traps while after moose or other late autumn game. For these the hints here given will suffice, while those who desire to go deeper into the art of trapping will do well to consult some of the authorities mentioned at the close of this chapter. For that matter, a few good books on trapping are never amiss in the sportsman's library.

Fur-bearers

Among the trapper's game may be mentioned such valuable fur-bearing animals as the otter, marten, mink, and fisher, as well as the black bear, the lynx, wildcat, raccoon, fox, skunk, and muskrat. The very valuable beaver is properly protected in most of the territory included in the north woods, though in some districts an open season is soon to be allowed. Snaring game-birds is everywhere prohibited. Otter, wildcat, muskrat, and mink are found throughout the north, while the marten and fisher are less universal. The wolverine is not much valued for its fur, but it is a public benefit to destroy it, on account of its predatory habits. The little weasel, which becomes the beautiful and popular

By courtesy of "Forest and Stream"

ON THE TRAPPING LINE

ermine in winter, is also legitimate game, though its small size makes it hardly worth while, unless very abundant. Otter and foxes are not generally protected.

Value

Fur-bearing animals, owing to persistent trapping, largely by unscientific, short-sighted methods, are constantly growing rarer, with the result that their pelts steadily increase in value. As a general rule the colder the season the better the fur, winter skins commanding the highest prices. The Indian rule says, "When leaves fall fur good," but prime condition hardly comes before the snow falls freely. Canada and the portions of the States on the Canadian border naturally furnish the best fur. Aside from the black (silver) and blue foxes, which are mostly captured in the far north, the most valuable fur of the north woods is that of the otter, the marten, the mink, the fisher, and the beaver. Other valuable pelts are those of the cougar, the Canada lynx, and the black bear when in prime condition. A great deal of money is made by trapping the lesser fur-bearers, such as the skunk, the raccoon, the common foxes, the weasel, the wildcat, and above all the lowly muskrat, numbers making good the lack of quality. Prices obtained by trappers themselves from the dealers may be gathered from the following list, which were current last winter in a large Eastern city: Otter $22, marten $20, beaver $10, mink $8, fisher $8, lynx $7, timber wolf $4.50, wolverine $6, red fox $3.50, skunk $2.50, wildcat $1.25, ermine $1, muskrat $ .20. These prices are rather high.

A prime, large grizzly bear skin brings $25 and that of a black bear in perfect condition $20. It must,

however, be borne in mind that the above prices were paid only for the very best quality and largest size of skins captured in the dead of winter in Canada and the most northern United States. Should a skin be trapped farther south, or be a trifle smaller, or not absolutely prime in quality, or, finally, have shot-holes in it, its market value sinks alarmingly, so that there are three to five prices for the skins of the same species of animal. In selling it is best to send one's pelts either to a well-known fur-dealing firm or confide them to the local dealer, who is likely to give a fair price and save you much trouble. Of course if you can take the furs yourself to the city and wait for an opportunity, you may get better prices.

Varieties of Traps

The traps used for fur-bearing animals by the primitive inhabitants of our forests, who were unacquainted with wire and steel, were almost exclusively such as resulted in the immediate death of the victim, and thus humane in character. It was reserved for "civilized" man to invent the steel-trap, which often tortures its victim until death ensues after long agony. It is, however, so much more certain and more easily set than the "deadfall" of the Indians, that utility has once more triumphed over humanity, and the steel-trap is universally employed by systematic and successful trappers. Nevertheless the deadfall, when well constructed and set, is most useful; in my own opinion nearly as good as the steel-trap, though taking longer to construct and having the great disadvantage of not being transportable. On the other hand it is constructed from materials found on the spot, with no other tools than knife and hatchet.

Deadfalls are of many varieties, the salient feature of all being a weight supported by a prop, which is displaced by the victim as it seeks to pass through the door of the trap, or (most often the case) disturbs the bait on the end of the trigger within. The weight is almost invariably a log or pole (according to the size of the trap) across which are laid other logs and stones. This weighted log, falls between two pairs of stakes driven into the ground on each side of the opening, which is made just wide enough to admit the victim. On the ground between the stakes is a smooth log upon which the weighted log, or "killer," falls. The prop (for mink-trapping about six or seven inches long and not over ¼ of an inch in diameter) is flat on top, to receive the killer, but cut thinner at the bottom, which is left a long and narrow rectangle or else a blunt point. This rests upon the end of the ten-inch, slender trigger, which is flattened at one end, so as to rest steadily between the prop and the under entrance-log at one side of the entrance. The trigger extends inside to the back of the pen, the free end being baited. It is evident that when this baited end is moved the delicately balanced prop is displaced and the killer-log falls upon the victim's back. The pen is made of sticks driven into the ground, or rocks or other material unartificial in appearance but strong enough to prevent the animal breaking through instead of going in at the entrance. It is covered with pieces of bark, sticks, and what not, and is just large enough for the weight to strike the victim in the back when it seizes the bait.

Deadfalls

In the case of a bear-trap, in which the weighted log is too heavy to set in this manner, this log is suspended by wire or withes to one end of a stout

stake about four feet long which rests on an upper, fixed log and extends over the whole pen-opening to the back, where another wire or withe connects it with the bait in such a way that, when the bait is disturbed, the withe is pulled off the inner end of the stake, which flies up, of course releasing the weighted log over the entrance.

The triggers described above are as good as any others, if not rather better, though many varieties are in use.

Steel-traps

There are three kinds of metal traps: those set flat on the ground or in the water, those set upright, and those set on trees. Of the first class, comprising nine tenths of all metal traps used, the Newhouse traps are the most durable and best (Oneida Community, Kenwood, N. Y.). The second class is represented by the Stop-thief wire trap, which is set upright over the hole of an animal, which springs it by striking the trigger in passing. It has the advantage of nearly always killing at once. The Tree-trap (for marten, raccoon, opossum, squirrel, etc.) is placed on tree-trunks or limbs. It strikes the animal's neck when the bait is disturbed and kills instantly. Both the two latter kinds are made by the Animal Trap Company, Abingdon, Ill. The catalogues of all these firms should be sent for, though the traps can be purchased in almost any large town. The Newhouse traps are graded according to size, but are strong enough to hold animals somewhat larger than those given for the stated sizes. Thus No. 1, though advertised to trap muskrats and skunks, is quite strong enough for mink, and is used by trappers for that animal more than No. 1½, the so-

called mink size. No. 1 costs per dozen from $2.50 to $3.00 according to the place of purchase. The single-spring No. 2½ is strong enough for otter. Its price is from $8.25 to $9.90 per dozen. Stop-thief traps No. 1 (for squirrels and gophers) cost $1.05 per dozen of the makers, and No. 3, large enough for raccoon and skunk, $1.75 per dozen. The tree-trap for mink and marten costs $ .50, and that for raccoon $ .60 each. These prices include chains where used.

Spare Links

It is well to have a 50-cent box of "cold shut repair-links" of different sizes, with which broken chains are easily made whole.

Care of Steel-traps

New steel-traps should be well rubbed with tallow, lard, or some other grease containing no salt, to prevent too much rusting. Rust tends to prevent the smooth working of the trap, and the odor of it to frighten game. When rusty—and a little rusting is unavoidable—the traps should be placed in kerosene oil for a day, more or less, and then rubbed and sandpapered or scraped. When put away for the summer tallow them well. Before using examine them for flaws in trap or chain. Look after the chain swivels particularly, as, if they refuse to turn, a strong animal will be likely to break the chain.

Most trapping authorities warn us never to handle traps with the bare hands when setting them, but this rule is more honoured in the breach than in the keeping. If neglected it will be well either to smoke the traps or to smear them with "dope" (see below), in order to counteract the human scent.

Artificial scents, or "dope," are extensively used

to give the bait additional strength of odor. There are many of them, the commonest being made by hanging pieces of eel, trout, or other oily fish in bottles in the sun, the resultant fish-oil being particularly malodorous to the trapper, but quite the opposite to the fur-bearers. Other "dopes" are made of annis, castoreum, assafœtida, fennel, cummin, musk, etc. The advertising pages of *Hunter-Trader-Trapper* will reveal the sources of many of these dopes, which may be purchased for trapping any animal. Trappers differ widely in their estimates of the value of the use of dope, many ignoring it entirely. It can certainly do no harm, and may be recommended to all but the most wary and careful, as it serves to counteract the human smell. A drop or two is put on the bait and more sprinkled about the trap. The soles of the shoes may be smeared with it, and a small bag filled with rags steeped in it may be dragged from several directions towards the trap, or from trap to trap as the trapper proceeds on his rounds.

Scents

Besides light leaves, powdered rotten wood and bark, chaff, etc., used to cover the trap, a few feathers scattered about serve to attract the prowling mink and mask the iron.

Although the ring of the trap-chain is generally firmly attached to a tree or root by driving the spike into it, it is often a good plan to use a spring-pole, especially in regions where smaller trapped animals are commonly stolen by wolverines, fishers, and other trap-robbers. It is merely a stout sapling bent down and confined by a rough hook driven into the ground. The end of the chain

Spring-pole

is attached to the top of the bent sapling, which is placed under the hook in such a manner that it is quite easily released in the struggles of the trapped animal, which is then jerked up and suspended out of the way of marauders.

Traps set in or very near the water should always be attached to sliding-poles, set slanting in the bottom, the chain-ring running loosely, so that, when the animal is caught and seeks the water as a means of escape, the ring slides down the pole, preventing the re-ascent of the animal, which speedily drowns. The pole is therefore a humane appliance. Light chains, stretched tight, are sometimes used in place of poles, but are much more conspicuous, as well as an unnecessary weight to carry. Sliding-poles are used particularly in the trapping of aquatic animals, which will often gnaw off their imprisoned feet and escape, though this happens less often than is commonly believed.

Sliding-pole

Trapping is an interesting and instructive art, because success in it requires a study of the habits of the animals trapped. The best trapper is the one who, in addition to this knowledge, is the most familiar with his territory. His observations extend throughout the year, and his eyes are as open in early spring, just at the close of the season, as at its beginning in autumn, for signs of game, since the cardinal point of trapping consists in finding out the exact haunts of the quarry.

The Starting-point

THE OTTER (*Lutra canadensis*)

This largest member of the marten family (*Mus-*

telidæ) is an amphibious fish-eater, a mighty, web-footed swimmer, in which capacity it is aided by a long, thick, pointed and flattened tail. Its broad, flat head and thick body together are about 25 to 27 inches in length, its tail 15 or 16 inches, and its thick, fine, beautiful fur is dark brown. It lives in burrows under the banks of streams and lakes. Its young are generally two in number. The otter does not readily enter traps, and would be a most difficult animal to capture were it not for the fact that it is distinctly a creature of habit. Although a somewhat wide ranger, it commonly crosses islands and land-spits by regular, beaten paths that are easily recognisable, and in such paths, at the water's edge, the steel-traps, concealed by leaves, chaff, and light moss, are usually set. A curious habit of otters is that of sliding down slippery banks into the water, thought to be of purely sportive nature, and traps are also set at the top and in the water at the bottom of these "slides." The trap, a No. 2½, 3, or 3½ Newhouse, is attached, by means of the chain-ring, to the thick end of a stout, trimmed sapling, from 10 to 15 feet long, by splitting and wedging that end. Trap and chain are covered up and all traces of man carefully removed, the path being at last plentifully dashed with water with a spruce branch. When the otter springs the trap the weight of the pole prevents his escape to any great distance, while its ability to drag it a little way renders it unlikely to gnaw off or pull out its foot. It is best to inspect otter-traps in canoes, in order to leave no telltale scent in case they are not sprung. Bait is not generally used in trapping otters, as they are not very partial to dead food, especially when stale, preferring to catch their own. Something

soft that will not freeze should be placed under the pan to keep it raised.

In addition to the above "land-sets" there are water-sets" for otter, one being at the foot of a slide, in a couple of inches of water. Another is to place the trap just on the bottom where the hind feet of the animal touch the ground as it lands at a slide of path. The sliding-pole (see *Mink*) is often used with water-sets. Water-sets

THE MINK

The Mink (*Lutreola vison*) is a small replica of its big cousin the otter, and rivals it in cunning while far surpassing it in ferocity, being incredibly bold when it attacks its prey, often ignoring even the presence of human beings, though very shy at all other times. Mr. Hornaday tells me that he finds the greatest difficulty in defending the rare wildfowl of the Bronx Zoölogical Park from the ravages of minks. A very large mink will measure 20 inches from nose to root of tail, which is about 7 inches long. In colour it may be light or dark brown, the latter being the more valuable. Like all the *Mustelidæ* the mink breeds in the spring, bringing forth from four to six "kittens" at a litter. Except at the breeding season it is a great traveller, but seldom wanders far from the banks of streams and lakes, being a bold and expert swimmer. Its food consists of any birds and small animals, some much larger than itself, that it can capture, as well as fish, muskrats and trout being among its favourite dishes, for which reason the one or the other of these is preferably chosen to bait

mink-traps. These are either the steel-trap (No. 1 or 1½) or the deadfall. If a steel-trap the bait is placed either at the farther end of a covered "pen," upon a spindle, so that the mink must step on the pan of the trap in order to reach it, or hung in such a manner that the hind legs will be caught when the animal rises to secure it. In place of the pen a cavity in a hollow stump is often used, having a more natural appearance. In fact the trapper always seeks the aid of natural features as far as possible. The bait should be well secured to the spindle, so that the mink will have some trouble in detaching it, as the trap may spring hard and allow its escape if the bait is too lightly attached.

The mink runs along the banks, prying into every crevice, hole, and hollow log, and this habit gives the trapper his cue, as well as its way of visiting islands, especially those of miniature size, such as rocks and half-submerged logs. Among the various mink-sets with steel-traps may be mentioned the following: at the entrance to any hole along a stream, the bait being placed at the bottom and often scented; in a hollow log, the bait being placed each side of the trap, or on the inside if one end is stopped up; on the mud or in shallow water under the bank washed out by the stream, the bait being suspended above, or, if the path is very narrow, without bait, a few drops of scent being sprinkled on each side; in the water directly under an airhole in the ice; in a snow-tunnel made by mink; in a tunnel made with flat stones. In fact traps may be set in any of the numerous places where mink are likely to run, the observation of the trapper being the criterion. Deadfalls are generally set close to the bank, in the mink's line of march.

Muskrat flesh is the best bait, with trout a close second choice, other good lures being birds, mice, rabbit flesh, sardines, and even red herring if nothing better is at hand.

THE MARTEN

The Pine Marten (*Mustela americana*) is a first cousin of the mink and of about the same size, but much less ferocious in character, seldom killing more than it needs for food. It lives in hollow trees and burrows, in wooded districts, and its young are from three to five in number. Although far less valuable than its Russian cousin, the sable, its fur, ranging in colour from yellowish to the much-sought dark brown, is nevertheless one of the most beautiful belonging to American animals. The marten is carnivorous and the traps for taking it are therefore baited with meat, birds' heads, fish, etc. They are set in or near trees, the most humane trap being the tree-trap, described above, which kills almost instantly.

THE FISHER

The Fisher (*Mustela penanti,*) or Pennant's Marten, is larger but much less valuable than the pine marten. It ranges widely but loves to live in trees, being a fearless and expert climber. It feeds on any kind of flesh procurable, from frogs to porcupines, and is a well-known bait-stealer. It measures nearly two feet from nose to root of tail and is built more powerful and stocky than the mink or marten. The young are from two to four in number. The fur is a glossy black or brown. Traps for fisher should be provided with spring-poles, as this animal is very apt to gnaw

off its own leg and escape. Rabbit flesh forms a good bait. The No. 2 tree-trap or 1½ Newhouse steel-trap may be used. Deadfalls are often pulled to pieces by the fisher's powerful claws. A hollow log is a favourite place for setting, and "dope" is often dragged from trap to trap, as well as smeared over trap and bait.

THE WOLVERINE

The Wolverine (*Gulo luscus*), Carcajou, or Glutton, is a savage, powerful and ugly animal of about the size of a bull terrier. Its ferocity and cunning, though not its appearance, show its membership in the marten family. It is not only the greatest pest of the trapper, breaking his traps and robbing him of his fur, but often tears down even his camps and *caches* and destroys his supplies, while at the same time it is wary and difficult to trap. The name given it by some Western Indian tribes, "mountain devil," is richly deserved. In appearance it seems to be a kind of link between the marten and bear families, having teeth like the former, while being flat-footed and heavy-bodied like the bears. In colour it is brown with lighter bands. Poisoning with strychnine, a method best left to professionals, is said to be the best way of getting rid of the wolverine. Mr. Hornaday has a most amusing account of the animal in his *Camp-fires in the Canadian Rockies.*

THE LYNX

The Canada Lynx (*Lynx canadensis*) is a thick-furred, grey, large-footed, long-legged, and short-tailed animal of the cat family, standing about 18

inches high at the shoulders, and weighing about 20 pounds, though large ones may be heavier. The length of body and head is about 32 inches and of the tail 5 inches. Characteristic marks are its "whiskers" and the stiff, black pencil-hairs with which its ears are tipped. Though more often shot, after treeing with dogs, than trapped, steel-traps baited with rabbit or bird flesh are used, as well as snares placed in the runways. (See below under *Wildcat.*)

THE WILDCAT

The Wildcat (*Lynx rufus*), (Bay Lynx, Red Lynx, or Bobcat) is a much commoner member of the *felidæ* than its more northern cousin, being found all over the United States and Canada. It is about the same size as the lynx, but is a much handsomer animal, its coat being yellowish brown mottled with black. The quality of the fur, however, is inferior to that of the lynx. The wildcat, though very strong and active, is a cowardly beast and will never face either man or dog unless trapped or cornered, when it will often spring at its persecutor. It is so shy that many old woodsmen have passed their lives without seeing more than a half dozen except in traps and snares. It lives on all kinds of small game and is particularly fond of lambs, rabbits, and grouse, for which reason most States have placed a bounty on its capture. Like the mink, it will often kill more than it can eat, and in the Maritime Provinces (especially Nova Scotia), where a large variety, called *Lynx gigas*, has its home, I have known it to kill six full-grown sheep in a night, while its record for lambs is thirty-two in a week, exploits that would be credited only to the

panther if that animal still existed in the East. Like the lynx the bobcat is generally treed with dogs and shot, though in swampy country it will often run round and round the swamp, in which case the hunter takes his station near a track and shoots when the cat passes. It will often get into mink-traps, which are generally too weak to hold it. If steel-traps are used No. 2 and 2½ are good sizes. The bait may be rabbit flesh. The best way to catch cats is, however, to set snares in their paths, which are readily recognised by the tracks, dung, etc. The snare is best made of brass rabbit-wire, four strands being twisted together and then doubled, making a cable of eight strands. It should be about two feet long, a loop being left at one end to form a noose, which should be eight inches in diameter. This is attached to a small evergreen tree and set in a part of the path where it narrows to about the width of the snare. Such a place may be made by the aid of rocks, brush, etc., the object being to insure the cat's passing through, for which reason brush should be heaped on each side of the path. The young evergreen is thrust into the ground on one side, and the noose adjusted so that its bottom is two or three inches above the ground. The cat in passing puts its stupid head through the noose, and its consequent struggles serve to tighten it to strangulation. If the tree were fixed the snare would be torn apart. No bait is needed. A good wildcat skin makes a beautiful rug, mounted with the head and claws; the skull should therefore always be preserved.

THE FOX

Renard is found in several varieties in the regions

"YANKEE" AND HER BACKWOODS COUSIN

NAL

most frequented by campers, but the red fox (*Vulpes fulvus*) is by far the commonest, being found all over the north-eastern part of our continent, wherever there are trees, and even in Alaska. Its persistence too is remarkable, for, in spite of the fact that every man's hand is against it, it seems to thrive and even to increase in numbers. It is about two feet long and thirteen inches in height. The fox is not a very easy animal to trap, for his slyness is as well founded as it is traditional. Steel-traps are generally used (No. 2 or 2½), and these are set at the entrance of a den or in a path, and always covered with chaff, moss, earth, etc. Before being set the trap ought to be smeared with blood or "dope," or both, to eradicate all human scent. The bait (meat, fowls, etc.) is generally cut up and scattered about the trap, none being placed directly over the pan. A drag of "doped" meat is often used to make paths of scent leading to the trap from different directions. In trapping foxes gloves should be worn to handle traps, and it is a good plan to smear the soles of the boots with "dope." A place where fox-traps are set is called a "bed," and often several traps are set in it, part of the bait being buried incompletely, so that the fox will dig up the bait and in doing so get his foot into the trap.

The cross fox is merely a "colour phase" of the red fox, having a dark cross on the shoulders and black legs and belly.

THE MUSKRAT

The Muskrat (*Fiber zibethicus*) is not, as commonly believed, a small cousin of the beaver, but a real rat. It is about 21 inches in length, and its chief

characteristic is its hairless tail. It is aquatic in its habits, inhabiting houses on the banks of streams and ponds, the entrances to which are below the surface of the water. Its chief enemy is the mink, which sometimes assails it in its very home. Its name is taken from its strong odour, which emanates from the musk-glands near the tail. Its skin, dark brown in colour, is probably the most used of any cheap fur in the world, principally for linings of coats, gloves, etc. It is easy to trap, all that is necessary being to set the traps (No. 1), unbaited but concealed by leaves, dead grass, etc., at the landing-places of the rats, in their paths, in the water at the entrances of their houses and other haunts. As there are often no trees or bushes large enough to hold the trap-chains, these are attached by their rings to stout sticks thrust deep into the marsh. As the rat nearly always dives into the water when caught, it is speedily drowned, the weight of the trap preventing it from remaining at the surface long. This is necessary, as the muskrat will otherwise very often gnaw off its foot. A sliding-pole may be used, but is hardly essential. Small islands, even artificial ones made by sods, are good sites for traps, as the rats frequently land on them when swimming. An old but often effectual trap consists only of a barrel, weighted so that it sits deep in the water with its edge but a few inches above the surface. Pieces of apple, vegetables, flagroot, etc. are placed in the empty barrel. The rats readily jump in to get at the food but are unable to get out again. There are innumerable other contrivances and methods for trapping muskrats, but the steel-trap is the best.

THE RACCOON

The Coon, short for Raccoon (*Procyon lotor*), is a plantigrade remotely allied with the bear family. It feeds upon almost anything it can find, is more or less nocturnal in its habits, and hibernates like its big cousin. From four to six "kittens" are born in spring. The coon, which is commoner in the south than with us, has a body about two feet long, a bushy black and yellow ringed tail, and a whimsical head from which two very bright eyes peep forth. The colour of its body is greyish, barred and streaked with darker shades. It loves to swim and will eat a frog as soon as a fat pullet, though it is a frequent visitor to the poultry-yard for the purpose of "lifting" the latter dainty. Coons are trapped by setting concealed traps (No. 1½) in their known paths, or in places frequented by them. Bait on sticks may be suspended over the traps. Fish is good bait, either fresh or salted and roasted, to give it a strong odour.

THE ERMINE (WEASEL)

The Ermine (*Putorius erminea*) is our common weasel in its beautiful winter dress, white with black-tipped tails. This coat is often yellowish in tint, a condition detracting from its value. On account of the small size of the ermine it is not much trapped, most of those taken being the victims of investigation of traps set for larger fur-bearers. It is the smallest of the marten family, being only about a foot long, but exhibits all the boldness of its big cousin the mink, preying upon rabbits, ducks, and chickens. It imitates the ferocity of the mink, too, in killing much more than it can devour. It is distinctly the

sportsman's enemy. Small steel-traps (No. o) are best for ermine, which are very greedy and easily taken. The weasel in its brown dress has no market value.

BEARS

The Grizzly Bear is trapped for the bounty placed by several States on its head, as well as to rid the district of cattle-killing vermin, or, finally, for the sake of sport, a bad reason, however. Its pelt is inferior in quality to that of the black bear. The method of capture of both animals is similar, though the steel-trap used for the grizzly is larger than that for black, the Newhouse special grizzly trap, weighing rather less than fifty pounds, being that generally selected. There are two smaller sizes for trapping black bears. The method of setting a bear-trap is thus described in *Hunter-Trader-Trapper* by an old woodsman of Montana, and may stand for the average set with steel-traps:

> The entrance of the enclosure (pen) is narrowed by stout stakes driven in the ground, the last two driven slanting, so the bottom of the entrance is just the size of the jaws of the trap, and by slanting outward they accommodate the body of the animal. The bait is placed about four or five feet beyond the trap, which we set crossways in the gap, loose jaw out, well bedded down, so when the trap is covered with grass, moss, or other trash it is perfectly level, making a nice place for your game to step. Just inside of the trap we drive a dozen or more small stakes, letting them stick up six or eight inches. Your bear will not step on these pegs, but as close as possible to them, in searching for the bait; therefore you can calculate to a nicety where he will place his foot. We secure the chain to a clog four or five feet long and six or seven inches in diameter.

This clog is usually of about 75 or 80 pounds in weight

for a grizzly and half that for a black bear. The greatest care should be taken when setting bear-traps, in order to prevent accidents. More than one poor fellow has been caught by the forearms in the jaws of a bear-trap, the result of such an occurrence, in case the man is alone, being best left to the imagination. Only his skeleton would remain to chronicle his fate. The Oneida Cummunity makes iron clamps for the purpose of setting large traps with safety, Nos. 5 and 6 being suitable for bear-traps.

The pen for a steel-trap need not be so elaborate as that of a deadfall, but should insure the stepping on the pan of the trap by the animal. The pan may be supported by a light stick, strong enough to prevent the trap being sprung by a smaller animal than a bear. A strong bear will drag a trap for a half a mile or even farther, but his trail is easily followed; whereas if he were able to get a straight pull on the chain, it would very likely part. Meat of any kind may be used as bait; if smeared with honey or molasses it is more attractive. North woods hunters frequently take one or more bear-traps with them, which they bait with the offal of any moose or deer slain.

Deadfalls for bears are described above.

The *skunk* is not so numerous in the north woods as farther south. The "sport" of trapping it may well be left to professionals.

Bibliography

Readers who intend going in seriously for trapping are strongly recommended to subscribe to the *Hunter-Trader-Trapper*, a monthly magazine published at Columbus, O. ($1. per year), a veritable storehouse of trapping lore, one

of the most valuable features of which is the letters from well-known trappers in different parts of the United States and Canada. There is at present no up-to-date, authoritative book on trapping. Among good pamphlets may be mentioned as desirable to possess: *The Newhouse Trapper's Guide* (Oneida, N. Y.); A. R. Harding's books: *Deadfalls*, *Mink-Trapping*, *Fox-Trapping*, and *Steel Traps* (Columbus, O.); *Canadian Wilds*, by Martin Hunter; *Camp Life and the Tricks of Trapping*, by Wm. H. Gibson (New York). The last-named book is elaborate but rather out of date. It contains good descriptions of snares, box-traps, etc. *The North American Trapper* (Oneida Community, $1. per year) is an excellent monthly.

CHAPTER XX

PHOTOGRAPHY

THOUGH it is not necessary to admit that hunting and fishing, as indulged in by the humane and intelligent sportsman, are morally reprehensible, it nevertheless remains true that year by year the world is growing less bloodthirsty, and for this reason the more prone to welcome the delights of what has come to be called "hunting with a camera," a sport that cannot be too much encouraged. While its character may be a trifle too idyllic for strenuous temperaments, there are many who assert that it may be made as exciting as the photographer wishes; and instances of the facing of a wild grizzly at shortest range armed only with a Graflex indicate that pluck may at times be as desirable a quality as if the camera were a Winchester .405, aye, and perhaps more so. And when it comes to the moral side of the comparison the hunter, if he is honest, will change the subject as rapidly as may be.

It may be said at once that photography in the woods must be either the principal object of the outing or a mere adjunct. If the former it is evident that all preparations must be made with that object in view, and, very especially, the apparatus must receive the greatest attention. Taking for granted that my readers are more or less beginners, their

efforts having been confined to Kodak work, my advice to them, in case they wish to progress in the art, is to purchase a camera with a somewhat better lens than they have been using. As in other branches of sport, the best plan, in case one does not possess that invaluable friend who has expert knowledge of the subject, is to write for catalogues of the best firms, such as the Folmer & Schwing Company and the Eastman Kodak Company, Rochester, N. Y., and to consult a reliable dealer. Those who desire to go in seriously for nature photography should purchase the best books on the subject, mentioned in the bibliography at the end of this chapter, which contain a mass of practical information on the subject.

Cameras

Woods photographers may be divided into three classes. The first comprises those who take along a camera for the purpose of bringing home pictorial souvenirs of the trip, camp-scenes, portraits of their companions, etc. The second is made up of those who place more importance on the artistic or scientific result of their efforts, and who therefore require a better, quicker-working lens. The third class consists of the experts who attempt such difficult feats as the photographing of an owl or a woodcock on the nest, or of wild-flowers at closest range, or, finally, of distant mountain-goats with a telephoto lens.

Kodaks

For the members of the first class some kind of a Kodak will be sufficient. There are two kinds, those with the so-called "universal focus" ("Bull's-Eye," "Brownie," etc.), and the folding Kodaks. The former, which are the cheaper ones, do not have to be adjusted to any particular

distance before the "button is pressed," but are always in focus. The lenses are naturally not of the best, but when the light is good some very clear work can be done, quite capable of being enlarged to any size. The Bull's-Eye No. 2 or the Brownie No. 2A may be recommended. It is needless to say that these are used with film-rolls, which can be inserted by daylight. The folding Kodaks have much better lenses, are in a more convenient form for carrying, and may be had in the 4 x 5, 4½ x 6½, and 5 x 7 sizes. Of these three sizes I prefer the 4 x 5, the others being rather bulky. The "Postal-card size," 3½ x 5½ is preferred by some. These cameras are provided with focussing scales, showing how far to pull out the lens. The regular lenses provided are sufficient for all slow work, but the flying bird or even the tossed pancake will be but blurs. It is better to stretch a point and have the new camera fitted with a high-class lens, like the Bausch & Lomb Zeiss Tessar, the Cooke or the Goerz, costing (for a 4 x 5) in the neighbourhood of $40, with which the most difficult pictures may be taken. Nor is one so dependent upon brilliant light as with the cheaper lenses. The folding Kodaks are carried in a sole-leather case with straps for the shoulders, and are the most convenient of all to transport. A portrait attachment lens ($ .50) is very useful, allowing enlarged pictures of objects at near distances to be made.

Booklets of instructions are furnished with Kodaks, and it is well to have one along and not to depart from its rules. In spite of the makers' boast that the film-rolls may be removed and renewed in broad daylight, it is better to take no chances, but to load and unload in as dim a light as one can see in. There

should be some kind of a light but durable case to carry single rolls in while in the woods, but I know of none. If on an easy trip I generally take a small supply of black paper, in a piece of which I wrap the exposed film-roll, placing it then in the cardboard box from which the new roll is taken. The whole is then wrapped up in whatever material is handy and deposited in the knapsack away from the light. The date of exposure should be written on the box. One of the great drawbacks of woods photography is that the incident or scene which one is apt to desire to perpetuate more often than not takes place in a bad light, the result being underexposed and indistinct. Such a picture makes a bad impression in an album, though it may nevertheless form an important memory-hint and therefore have a value of its own.

A practical and convenient method of carrying small folding cameras is shown in the two accompanying illustrations. Fig. 69 represents an ordinary leather belt to which a strap with a buckle has been attached, which is run through the loops at the back of the camera-case. Fig. 70 shows the manner in which the camera may be pushed round the belt to the point where it will be least in the way. This method was described by a writer in *Forest and Stream* and has the endorsement of the editor of that journal.

FIG. 69.—Belt with camera strap.

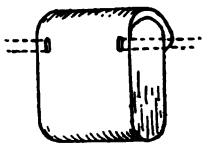


FIG. 70.—Camera-case on strap.

Though scenes which require no very quick lens to take may form even a majority of the pictures secured on the ordinary tour, those that are most interesting and will afterwards be most valued are the snapshots of wild animals and birds; and the amateur will speedily discover that with cameras that require the lens to be fixed at a certain distance from the object it is a very difficult thing to get the focus just right, *i. e.* the object at its clearest. To do this a so-called ground-glass finder, which reflects the object as you point the lens at it, is necessary, as well as some kind of appliance by which the moving object can constantly be kept in focus. There are several cameras which do this, the best, according to the author of *Nature and the Camera*, being the Graflex, which he calls "about all that can be wished for." There are several varieties of Graflex, but the not yet very expert amateur will be satisfied with the "Auto," with which the photographs reproduced in this volume were mostly made. With this instrument in his hands the sportsman, looking into an aperture in the top, can distinctly see the movements of any animal or bird, while, by regulating the distance by a wheel operated in his right hand, the object is kept continuously in clear focus. The left hand then presses a knob whenever it is desired to take the picture. This sureness of having the object in perfect focus makes all the difference in the world. The Graflex, like the Reflex, another excellent camera, is meant to be used with glass plates, but, though the expert ordinarily prefers them, it is evident that their bulkiness, liability to get broken, etc. render them less convenient than films, which, either in the roll form or the cut sheet

The Graflex Camera

(so-called "film-packs"), can be used as well as plates, and the results are about as good. The Graflex is provided with both a film-holder for rolls and a film-pack adapter ($7.50 and $5 extra respectively, in the 4 x 5 size). The rolls (of six exposures only, each) cost $ .45 apiece; the film-packs (twelve exposures) $ .90 each, both for the 4 x 5 size. Of good plates there are many makes, and it will be well to trust one's dealer. If plates are used several extra plate-holders should be taken along, an added encumbrance on a long trip. Plates, of course, can only be taken from the original box and placed in the holders in utter darkness or by ruby light. The former method is sometimes used by experts in the evening, the user covering himself, plates, and holders with a blanket to ensure perfect darkness. It is a matter of feeling only, and should not be attempted unless one is perfectly familiar with one's apparatus. A small folding ruby lantern, used with a candle, can be taken along and used in the tent at night. There should be no camp-fire near by, however.

Developing

It is strongly urged that no developing of plates or films be attempted by the amateur on a long trip, the exposed views being carefully kept until the return home. For this reason no apparatus should be taken with which one is not quite familiar, else it cannot be known what mistakes are being made. If field development is insisted on, either a bulky outfit for plates must be taken or film-rolls must be used and developed with a Kodak Tank Developing Machine ($6 for size 4 x 5), which can be done by daylight. Developing supplies, especially put up for this tank, may be had of all

10-POUND LAKE-TROUT

USING THE GRAFLEX

dealers. Personally I have not used the tank, but there is no doubt that excellent results have been obtained with it. In permanent camps dark-rooms may be improvised, the usual one being a small tent, but to avoid accidents it should be used only at night. No directions for developing need be given here, as there are numerous excellent pamphlets on the subject, and the implements needed are of infinite variety.

Lenses

It is difficult to say much about lenses without becoming technical and obscure. The catalogue of such firms as Bausch & Lomb (Rochester, N, Y.), C. P. Goerz (52 E. Union Square, New York), and Cooke (Taylor, Taylor & Hobson, 1135 Broadway, New York) will give the reader clear ideas of the different styles and their uses, so that a choice can be made according to the photographer's needs. To give an idea of the cost of a camera for ordinary woods work, I will say that the 4 x 5 Auto-Graflex which I have been using, and which is fitted with a No. 5 Zeiss Tessar 11B lens and has a leather carrying case and film-pack adapter, cost, inclusive, $140, the price of the lens alone being $40. The lens may be bought directly from the maker, but it is better to have the maker of the camera buy and fit the lens himself.

Shutters

One great advantage of the Graflex and its like over the smaller cameras is the focal-plane shutter, which is merely a black curtain containing slits of different widths, any one of which may be used, according to the desired length of exposure, from $\frac{1}{8}$ to $\frac{1}{1000}$ of a second. This possibility

of extreme shortness of exposure is the secret of clear instantaneous pictures. The smaller cameras are fitted with "iris" shutters, which really only reduce or enlarge the influx of light and are therefore not fitted for very quick snapshots.

Long Focal Length

If you are able to approach within a short distance of an animal the ordinary quick lens, say with a focal length of 8½ inches (Auto-Graflex), *i.e.* from plate to lens, will be found satisfactory, but at the distances at which one is apt to obtain chance interviews with the kindred of the wild the pictures secured are too small. For this reason the experts prefer a camera with a long focal lens, such as the "Naturalist's Cameras," which have a focal capacity of 26 inches and can be used with a telephoto lens for long-distance work. These magnificent cameras are beyond the pocket-book of all but the well-to-do or the professional who needs them as stock in trade, for, fitted with the proper lens, they cost not far from $400, the telephoto attachment costing an additional $24. This last magnifies about three diameters.

Still another advantage demanded by experts is the reversible or swing back, which enables one to bring both foreground and distance into simultaneous focus. Fronts that drop and rise are very convenient for photographing objects much below or above the camera.

Tripods

Tripods are seldom taken into the woods by any but experts, as portraits can be made by setting the camera on a stump or pack-basket. If one is used let it be a strong one, and, since it may be needed in photographing birds' nests or

other such objects, it should have fourfold telescopic, extra extension legs.

Having provided himself with his long-focus camera, having a reversible and swing back and rising front, his plate-holders, chemicals, field developing apparatus, and tripod, the real expert now supplies himself with a number of minor but indispensable articles, among which are climbing-irons, ball-and-socket clamp for securing the camera to trees, green cloth to mask the tripod, mirror to secure reflected light, rope to pull up the apparatus, a hundred feet of small rubber tubing and a rubber bulb for operating the shutter at a distance, focussing-cloth (to cover head and camera), and perhaps a false tree-trunk or other hiding-place made of cloth, from which to observe the timid objects of the "hunt." A description of the proper use of all these articles would take us much too far afield, but can be found in the books of Mr. Dugmore and Mr. Brownell, without which the amateur will hardly start upon such difficult task.

Implements of the Expert

The use of the flash-light in the woods requires much experience. Personally I have made a failure of it through lack of proper preparation. The apparatus for photographing large animals, like deer, from the bow of a canoe is an elaborate one. Descriptions of it have appeared from time to time in the sporting magazines. Another way to take night pictures of wild creatures is to set the camera at a certain distance from a runway or other haunt, and make the animal itself set off the flash-pistol by striking a wire or other appliance.

Flash-light Pictures

Herr Schilling, the German author of *Flash-Lights in the Jungle*, and Mr. Geo. W. Shiras, 3d, in this country, have accomplished very remarkable results in this branch of the art.

Bibliography

Nature and the Camera, by A. R. Dugmore; *Photography for the Sportsman Naturalist*, by L. W. Brownell; *Bird Studies with a Camera*, by Frank M. Chapman; *Bird Homes*, by A. R. Dugmore.

The articles by Herbert K. Job and many other nature photographers, many of which have appeared in *Outing* and other sporting magazines, are highly interesting and profitable reading on this subject.

CHAPTER XXI

HYGIENE, MEDICINE, AND SURGERY

HYGIENE

WHILE it is generally true that the traditional rules of hygiene may be neglected in the woods with less risk than in town, owing principally to plenty of exercise, the escape from quick changes of temperature, and the comparative scarcity of germs, it is nevertheless foolish to take chances. One can be fairly careful of one's health, avoiding too great risk of colds, over-exertion, and accidents without laying oneself open to the charge of being a molly-coddle. If the camper wears wool next his skin, does his full share of the daily work without over-doing, and keeps his bowels open, he is pretty sure to sleep well, enjoy himself, and return to his every-day work with renewed strength and zest. Getting wet will not harm the healthy person, but it is well not to expose oneself too long to a cold wind when wet, nor to sleep in wet clothes or blankets. Such advice must be given, though I myself have done all those things and thus far never taken cold in consequence of them. Of course if the camper is an invalid, or temporarily run down in health, he must be doubly careful. One reason why plenty of physical exercise should be taken is, that the appetite is apt to increase alarmingly and the unwonted amou

of food must be digested. Many campers find that they cannot sleep well for several nights on going into camp. This is partly on account of novel surroundings and partly in consequence of eating too much. Later on it will not matter, but for a few days it is better to eat moderately and to masticate thoroughly. This rule, of course, is one of the last to be observed, but let it stand. Many campers are more or less plagued with constipation, owing principally to the change of diet. Plenty of drinking-water and exercise, aided perhaps by a grain or two of cascara, will generally remedy this. It is well to drink a lot of water, good water, except on a long march, as when still-hunting, when little liquid should be swallowed, though the mouth may be rinsed out frequently.

It is next to impossible to get a hot bath in the woods, as not even that tenderfoot anomaly the folding bathtub is deep enough to afford a real soak; but hot baths are by no means so necessary to the woodsman, at least from the hygienic standpoint, as to the plaster-dweller, for the good reason that the former sweats, or should sweat, daily and copiously. Plenty of cold rubbings will keep him clean, as well as full attention to the scrubbing of his underwear. Those who are hardy enough should take a plunge in the lake or stream on rising, no matter how cold the water is, but the rheumatic or otherwise vulnerable should confine themselves to a cold sponge off in the tent, or enter the lake when the sun is high.

Over-exertion is a weakness peculiar to the young, who would rather "crack" than acknowledge being tired; very foolish, no doubt, but "what 's the use?" The preacher may, however, allow himself to say

that it is far less meritorious to boast that you have carried a canoe a mile without resting, than that you have done so with numerous rests but have finished perfectly fresh. The obvious remedy—and this cannot be harped on enough—is to take frequent rests, even if of short duration. It is wonderful how even a half minute's pause and shift of the packs on the carry will brace a man up.

He who wishes to secure needed recuperation during a limited stay in the forest should see to it that his bed is as comfortable as can be made. If he has no air-bed let him spend a half-hour cutting fir-boughs. Let the "tough" camper "throw himself down anywhere" and sleep with a rock or two under his kidneys. Untroubled sleep the camper must have. And let him avoid stimulants. Now is the time to drop them, for in the city he has to absorb more than enough. Of course it is a matter of the capacity and condition of the individual, but in general some one of the "detannated" coffees, which are comparatively harmless while tasting "just as good as the most injurious," may be recommended, and alcohol should be used sparingly if at all. The man is foolish who takes it habitually in camp, though a wee nippie on a festive occasion, or when tired out or wet through, is legitimate and wholesome.

CAMP REMEDIES

The question how much medicine to take into camp must be answered according to the size of the party and the projected length of the stay. As different individuals are apt to be persecuted by different ills it is better for each person to take what he needs

unless a common medicine-chest, filled by some expert member of the party, is agreed upon. Basing my recommendations upon the opinions of half a dozen well-known physicians and woodsmen, as well as upon my own experience, I have made the following list of medicines *for one man* for a two weeks' trip far from physicians:

A laxative (say 1 dozen 3-grain cascara pills, sugar-, not chocolate-coated. A pill may be divided for a small dose).
1 dozen 2-grain quinine pills (fever, etc.).
A small vial of laudanum (diarrhœa, etc.).
Half dozen 5-grain antipyrin pills (neuralgia, headache, severe toothache, etc.).
Vial of strong ammonia (insect-bites, etc.). (Vials with screw-off tops and tiny sponge attached are the best.)
Large tube of carbolised vaseline.
Small box of bicarbonate of soda.
Vial tincture of arnica.
Half dozen mustard-plasters.

TREATMENT OF CAMP ILLS

Nose-bleed. Not harmful unless too profuse. Lie down and apply a piece of cold metal or cloth dipped in cold water to the nape of the neck. If ineffectual snuff up salt and water; then plug the nose with cotton.

Chills. Take a hot drink and wrap up, toasting the feet before the fire. Change to dry clothing as soon as possible.

Colds. Colds are seldom the result of camp life, but are generally brought into the woods from town. Keep warm and dry and avoid changes of temperature. Keep the bowels open and sleep warm, using a hot-water-bottle if at hand. If you are robust the lumberman's cure is efficacious: Take a hot drink at night on going to bed, perhaps with a drop of lemon-juice and a "stick," and sleep with extra clothes on to induce a copious sweat.

Sore Feet. Oft-bathed feet seldom get sore, and in the woods involuntary baths are the rule, so that even a slovenly person keeps his feet soft. If they do get sore, perhaps from wearing moccasins for the first time on stony ground, they should

be soaked and rubbed with tallow, soap, or vaseline. If on a long tramp it is better to give them a partial rest for a day, as a serious stone-bruise is apt to deprive such a trip of most of its fun. Coat the inside of the socks with soap. Cover a badly chafed spot with surgeon's plaster.

Constipation may be treated with a moderate dose of cascara or other laxative; plenty of water should be drunk and an extra portion of stewed fruit or preserves eaten.

Diarrhœa may be combated with a light dose of cascara, followed, after each passage, by ten drops of laudanum.

Malaria is rare in the north woods. Quinine may be taken. For *Fever* give 5 grains of quinine daily; more if severe. Keep the bowels open, and do not cover up too warmly.

Sleeplessness is usually a matter either of nerves or of indigestion. If the latter the remedy is plain: a pill and abstemiousness. If the former: lots of work. Never mind if you do lie awake a little. There is a charm about that, watching the camp-fire die out and listening to all the mysterious noises of the night. (Read S. E. White's fine chapter in *The Forest.*)

Lumbago, Local Stiffness, etc. Rubbings (with arnica), hot applications, mustard-plasters.

Ivy-Poisoning. Poisoning from contact with poison-ivy (*rhus radicans*) or its cousin the poison-sumac (*rhus vernix*) is best treated by rubbing the affected parts with cooking-soda (or baking-powder) and water. *Washing* soda (carbonate) will not do; bicarbonate is needed. If no soda is handy use a strong lye of wood-ashes, or salt and water. I have seen wonderfully quick cures of bad cases effected by applications of whiskey. Alder bark chewed up was one of the old woods remedies.

Sunstroke must be treated by lowering the temperature of the body. Remove most of the patient's clothing and place him in a cool, airy place. Apply cold water to the forehead, chest, and armpits. Dash him with cold water, but not too cold. Keep him cool until he recovers.

Emetics. In case an emetic is needed tickle the throat and drink large quantities of lukewarm water. If this does not suffice mix a spoonful of mustard in the water. Gunpowder and warm water is a good emetic, but nowadays black gunpowder is seldom to be had in camp.

Burns of a light nature are treated by applying cloths soaked in a solution of baking-soda (bicarbonate), a teaspoonful to a half-pint of water; or the soda may be rubbed on dry. The white of an egg and carbolised vaseline are also good.

If the burn is severe prick any blisters that may rise and apply dressings of sweet oil, or, as that is almost never to be found in camp, with vaseline. If any part of the clothing has a tendency to stick to the flesh do not attempt to remove it, or the flesh may tear off with it. Pour oil on it, gun-oil, if nothing else is at hand, and it will gradually come off of itself. If the patient has received a mental shock 30 drops of laudanum may be given him (to a child as many drops as he has years). Keep the wounds dressed with oil, or any oily substance free from salt.

Scalds may be treated in like fashion.

Frostbite is treated by restoring the temperature gradually to the normal 99° Fahrenheit. Rub the bitten parts, soak them in fairly hot water, and apply warm wet cloths. If you are in the woods far from camp, rub the afflicted part vigorously with snow if there is any. If not, it does n't matter, for, contrary to the belief of the old woodsmen, it is the rubbing and not the snow that does the trick. By the same token warm water is far better than cold for frosted feet.

A badly frozen person should be treated with great care, the normal temperature being restored very gradually. Wrap him in well-heated blankets and rub hands and feet with your own hands.

Rheumatic persons had better bring a little of their favourite liniment with them, as well as a few flannel bandages.

Persons liable to serious attacks of illness should not venture far from their physicians. Healthy people can in most cases throw off mild attacks; courage has a lot to do with the cure.

SURGERY

In addition to the above-named medical remedies the following list of surgical supplies should be in every camp far from civilization:

Pair of dressing forceps.

Three or four surgeon's needles (straight and curved).

A yard or two of two sizes of surgeon's silk, and a few catgut ligatures, in a tube.

One first-aid packet for each person.

One medium small surgeon's knife or scalpel.

One hypodermic syringe. Have in its case: Tube of cocain-morphine tablets, tube of morphine-atropine tadlets, and tube of strychnine-sulphate tablets.

A quantity of 2-inch surgeon's adhesive plaster.

One dozen bichloride of mercury tablets. (One in a quart of water gives an antiseptic solution for wounds.)

Small vial dioxygen.

Small box boric acid powder.

WOUNDS

Among accidents necessitating surgical treatment are wounds, fractures, and sprains.

Wounds may be either contused (a "black eye"), incised (plain cuts), lacerated (ragged tears), punctured (with fish-hook or nail) or gunshot wounds.

Contusions. Contused or bruised wounds are the result of hard knocks with or against blunt surfaces; the skin may or may not be ruptured. Discoloration often sets in, owing to the escape of the blood from small vessels under the skin. If the skin is not broken but the bruise is very painful treat it with cold wet cloths or vaseline. After the pain has subsided use hot cloths or, better at first, laudanum and water. If the skin is broken get all dirt and foreign substances out of the wound and apply warm cloths. Do not close the wound, but treat with vaseline or some other ointment for several days.

Cuts. Slight cuts may be washed, covered with a vaselined cloth, and tied up securely; they will usually heal from "first intention" without any show of pus. If the cut is of any size, but not deep, bring the edges together after the bleeding has stopped and keep them in

that position by placing one or more strips of surgeon's plaster *across* the cut, not lengthwise with it. This leaves space for the escape of pus if any forms. No deep cut should be completely closed up on any account.

If a severe cut bleeds excessively note whether the blood is dark and comes steadily (from a vein), or in spurts and is light (from an artery). If from a vein the danger is less. Keep the wounded part raised and press on the wound with clean cloth or piece of gauze, soaked in cold water if the bleeding will not stop; if still in vain put a tight bandage (tourniquet or "Spanish windlass") near the wound but on the side farthest from the heart, as venous blood flows towards the heart.

If the bleeding is from an artery (*from* the heart) it is a more serious matter. If the flow is rapid wash your hands as quickly as possible and check the bleeding (after elevating the wound) by pressure with thumb and finger. A knowledge of the position of the larger arteries will be of great assistance here, for a pressure at the right place will arrest bleeding at once in most cases. If the flow will not stop make a tourniquet (see below) next the wound and on the side nearest the heart, from which the blood is rushing. If the artery is an important one and the loss of blood threatens to become serious, it must be tied up at all hazards, and, though in most cases there will be nobody present who has ever done such a thing, *somebody* must pull himself together and nerve himself to the task, which in itself is not so bad. It consists in washing the cut free from blood, discovering the bleeding end of the artery, getting hold of it with the forceps and tying up the end with catgut. To do this the catgut is looped round the handle of forceps doubly, and the loose loop pushed down the handle and over the end of the artery, where it is drawn tight. This can best be done by another person. Then wash the wound with a solution of bichloride of mercury, and put on the lintine from the first-aid packet, binding it down with one of the first-aid bandages. If the edges of the wound do not close, or the cut is very deep, they will have to be sewn up with silk, starting the needle ¼ inch from the edge and going to the other end of the wound. Then dress as above.

It is needless to warn against handling the flesh with the

hands and allowing any dirt to get into the wound. If it is absolutely necessary to use the hand wash it in the solution.

All bad wounds require rest. Take no chances when far from surgical aid. Blood-poisoning would be a very bad business.

The accompanying cuts will show how tourniquets can be made of handkerchiefs or braces and billets of wood. Place a pebble directly over the artery. They should not be kept on longer than necessary.

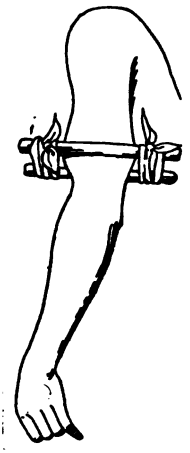


FIG. 71. — Tourniquet, for Stopping Bleeding from a Forearm Artery. (*From Johnson and Johnson's Hand-book of First Aid.*)

FIG. 72.–Spanish Windlass, to Stop Bleeding from Arm Arteries. (*Hand-book of First Aid.*)

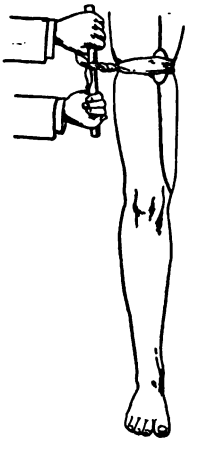


FIG. 73.—Windlass, to Stop Bleeding from a Thigh Artery. (Black line shows course of Artery.) (*Hand-book of First Aid.*)

Leave the dressing on for one or two days in case everything seems to be well, and then examine the wound. If there is no inflammation dress and bandage again. Take out the stitches at the end of a week. In two or three days there will likely be a flow of pus, which must be allowed egress by daily dressings.

If there is no surgeon's silk or needle in camp, ordinary silk or even cotton thread will do, and an ordinary needle, but the thread should be *boiled* for five minutes before use. Do not stitch the scalp, and in general avoid stitching if possible, as nasty scars may result. Shave or cut off all hair that interferes with plaster or stitching.

If the patient feels faint give him a little hot brandy or whiskey from time to time.

In surgical work of all kinds the hypodermic syringe may be used to great advantage (See below.)

Lacerations. Lacerated wounds should be cleansed of all dirt and washed with a solution of bichloride of mercury. Then treat with cloths wet with laudanum, and afterwards apply the dressing and bandage from the first-aid packet.

Boric Acid

This is a cure-all for wounds with some, who dress the wounds with it, stuffing them full of the acid. It is good and handy.

Needles

Punctures. If a needle breaks off deep in the flesh do not attempt to recover the buried part. Keep the other part and seek the aid of a surgeon as soon as possible.

Nails

Punctures with nails and such things, especially if rusty, should be squeezed and hot water poured into the hole. If too small this may be slightly enlarged. Then rub in vaseline. Keep the wound open for a few days.

Fish-hooks

If the barb of a fish-hook becomes embedded in the flesh remove the line and cut or file off the broad end of the hook. Then push the barb on through the flesh. Wash and dress with vaseline. The hypodermic may be used here.

Splinters

Small splinters are removed with a needle. Those under the nails are frequently awkward and very painful. Scrape the nail as thin as possible over the splinter; cut a little piece out in order to get hold of the splinter with the forceps or your fly-nippers.

Sprains, if slight, need only to be rubbed well and allowed a rest. A sprained ankle can be walked off, but this is a very dangerous experiment, and by no means to be recommended. Severe sprains are treated with hot water, either by immersing the sprained part in as hot water as can be borne, or by hot applications often renewed. A badly sprained wrist should be kept between padded splints.

Insect-bites. Treat with a drop of ammonia as soon as the bite is felt. Failing ammonia, rub with raw onion, with soda and vinegar mixed, or plain soda, or, finally, salt.

Snake-bites. If non-poisonous treat as if an insect-bite. If poisonous tie a handkerchief or some other ligature round the bitten member between it and the heart to stop the circulation of the poison. Suck the wound immediately and then cauterise it with a hot iron, hot enough actually to burn the flesh. Take a few good drinks of whiskey and pour ammonia into the bite. The whiskey braces the patient up and destroys any tendency to fear, which is the worst state for him to be in. There is generally no cause for worry in the north woods, even if bitten by a rattler, as death very seldom results, a badly swollen arm or leg being the worst to be apprehended. If in a snake country, take permanganate of potash, which, after making a tourniquet and allowing the wound to bleed freely, should be injected.

Bites of Dogs, Cats, Rats, etc. Suck the wound and treat it with carbolised vaseline. If there is any chance of the dog being diseased wash the wound first thoroughly. The dread of the severe consequences of a dog-bite is generally quite unnecessary. The scratch of a cat is apt to be more dangerous, as the claws may be contaminated with carrion or other rotten matter.

Infected wounds. If there is reason to fear infection keep the wound open to permit discharges. If fever should be present give a cathartic and daily doses of 5 grains of quinine. (Half to a child.)

Dislocations. If a joint becomes dislocated there will be pain and comparative immobility; the pain is from torn ligaments. A *finger* out of joint can usually be replaced by pulling. A *thumb* is far more obstinate; pulling hardly ever helps. Bend it far back towards the wrist and press at the same time against the base of the dislocated

bone, "pushing it away from the wrist and downward towards the palm." (Dulles.) To reduce a dislocation of the *jaw*: Cover the thumbs with cots or wear gloves; seize the sides of the patient's jaw with thumbs and fingers, the thumbs resting on the teeth and the fingers under the jaw. Now press very firmly, first downwards and then backwards. Be quick to withdraw the thumbs as the jaw slips into place, or they may be badly bitten. To replace a dislocated *shoulder:* Lay the patient down, remove your boot and sit down by him face to face; place one heel in his armpit and pull the arm into place. If this does not succeed easily better wait for a surgeon, which should also be done in case of other dislocated joints, such as the back or legs. Treat the dislocation with laudanum and cold water and hunt up a physician.

Fractures are called *simple* when the skin is not broken; *compound* when the bone cuts through the skin and communicates with the air. Unless somebody of experience in such matters is in camp nothing but emergency treatment should be attempted. This consists of placing round the limb cold bandages, to prevent swelling, and then putting it in splints. In the case of a compound fracture it must first be washed with the antiseptic solution, like any wound. If you are far from any surgical aid and your judgment tells you that something *must* be done to set the bone, get the necessary splints and bandages ready, and then pull on each side of the fracture, as much as possible in a direct line along the direction of the bone, until the broken parts come together. Pull steadily and do not twist. This is not so difficult with a broken arm. Grasp the hand in one of yours, and with the other seize his arm above the break and pull. The thigh is easier to treat than the calf, having but a single bone. In case no setting can be done, and after treating with cold compresses for half an hour, get the broken part into splints to hold it in place and prevent injury and pain while moving the patient. Lose no time in getting a surgeon.

Splints should be light but sufficiently strong, and should always be a little longer than the injured limb. The best shape is that of a light board, but many other things will do, as stiff bark, parts of wooden fishing-rod-form split up, sticks, etc. Anyone handy with the hatchet can make the

proper thing in a jiffy. Padding is always necessary. Pads may be made of anything soft, dry moss doing very well in default of plenty of cloth or cotton. Do not bind the splints on so tightly as to hinder circulation. If the break is a very bad one an imitation of the surgical "fracture-box" may be made of a tube of some stiff bark, in which the limb is firmly encased after swathing with paddings.

TRANSPORTATION

Injured persons should be carried in litters made from poles and canvas, or a sleeping-bag or blanket. Those carrying the litter should *not* keep step, a rule easy to adhere to in the woods.

USE OF THE HYPODERMIC SYRINGE

A good syringe in an aluminum case costs about $2.25. The following directions are condensed from the article by Dr. H. Plympton in the catalogue of Messrs. Abercrombie & Fitch, by permission of that firm.

Dr. Plympton gives four remedies for use in the syringe, but one of them, potassium permanganate, for venomous bites, is hardly necessary in the north woods. The other three are:

Cocaine-morphine tablets (cocaine, $\frac{1}{4}$ grain; morphine, $\frac{1}{10}$ grain; soda chloride, $\frac{1}{4}$ grain.
Morphine tablets, $\frac{1}{4}$ grain each.
Strychnia " $\frac{1}{10}$ grain each.

The object of hypodermic medication is to get the remedy into the blood as quickly as possible and to introduce it as near as may be to the seat of injury or the pain. To insure its rapid assimilation by the blood, the medicine should be injected just between the skin and the muscles underneath; in other words, into the fat.

Use. Dissolve the tablet to be used in the proper amount of water, or put any solution to be used into a teaspoon or

what you may have that will hold it. A leaf properly folded will do; even the hollow of the hand in an emergency. You will find a fine wire run through the hollow needle to keep it clear. Remove this. Remove the cap from the end of the syringe and suck up the solution from the teaspoon by drawing out the piston of the syringe. Screw the needle firmly on the end of the syringe from which the cap was removed. Hold the syringe with the needle pointing upwards and press gently on the piston until the fluid begins to come out of the needle. This is to force all the air out of the syringe.

Now take up a fold or pinch of skin between the thumb and forefinger, insert the needle with a rotary motion of the syringe, as when boring a hole with an awl, being careful not to press on the piston while so doing. Keep the needle in a line with the line of the fold and it will be in correct position.

The needle will slip through the skin quickly and almost painlessly. Push it in its full length. Now press firmly on the piston and force it in slowly until the contents have been injected, being careful to keep the syringe in position. Withdraw the needle, and with the thumb press on the little hole made by the needle; with the first and second fingers rub the swelling made by the injected fluid for a few moments and it will disappear, leaving nothing but a tiny red spot.

Location. If the injection be made between the skin and the muscles, as described, it may be made anywhere on the body, although just over a bone that is close to the surface, as the shin bone, or on the back of the hand, are places to be avoided. Also in the bend of the elbows and knees and in the armpits are vessels that would be injured by the careless use of the syringe. The outside of the forearm or the upper arm, and calf of the leg, or the thigh, the big muscles of the buttocks, and the shoulders, and anywhere on the back are all places where the needle may be used without hesitation.

A short needle, three eighths of an inch long, accompanies most outfits, and this may be used without taking up a fold of the skin; simply jabbed quickly and firmly as deep as it will go straight into any one of the big muscles.

The dangers in the use of the hypodermic are practically nothing. Exercise the same amount of care as in administering medicine by the mouth and no harm can be done; and, as in the case of a rattlesnake wound, the advantages are so

immeasurably ahead of any treatment by the mouth, even if it were dangerous, it would be worth taking the chance.

Precautions. Be sure that the tablet is thoroughly dissolved, or you may force a piece into the needle and spoil it. Ten drops of water will dissolve any one tablet, and fifteen will suffice for any two, especially if the water be warm. Do not use more than this, unless by direction. After using the syringe, and before removing the needle, draw up some water and eject it to clear the needle. A little vaseline or gun grease on the wire will prevent the needle from rusting.

For *minor surgical operations* the cocaine and morphine tablet should be used as follows: Dissolve one tablet in one teaspoonful of water and take up a syringeful of the solution. Inject half the quantity under the skin, not deep, where the cut is to be made. Almost immediately the skin will become waxlike—this will indicate that the part is benumbed, so that an incision can be made without causing pain. Make a sufficient number of injections to cover the part to be cut. The surface benumbed by each injection will be about the size of a 25-cent piece.

For *allaying intense pain* and *physical suffering* morphine should be used by dissolving one tablet (one-quarter grain) in about ten drops of water and injecting it under the skin as near the seat of the pain as possible. If the pain is caused by some injury, such as a broken bone or a severe burn, and is likely to last, a second tablet may be given in fifteen minutes and a third one twenty minutes later. Pain is the antidote for morphine, and as long as pain exists there is no danger from a much larger dose than the above. If, however, the pain arises from some cause such as cramps, that are likely to end abruptly, the above dose is enough.

For *exhaustion, shock, great fatigue, hunger, heart failure,* strychnia should be used as follows: Dissolve the tablet in ten drops of water and inject into the outside of the arm, midway between the elbow and shoulder. The condition of exhaustion, whether from great exertion, loss of blood, or hunger, has caused a marked depression of the heart's action and the nervous system is noticeably affected. The patient is pale, a cold perspiration covers the face, the breathing is shallow and quick, and the pulse is faint and very rapid.

One injection will show a decided effect, but if a second is necessary fifteen minutes afterward do not hesitate to give it.

Drowning. The instructions of the U. S. Volunteer Life-Saving Corps are as follows:

RULES FOR RESCUE AND RESUSCITATION

DO NOT GIVE UP—PERSONS HAVE BEEN RESCUED AFTER HOURS OF STEADY WORK

Rescuing

Approach the drowning from the rear, seizing them by the collar—if a woman, by the back hair—and tow them at arm's length to safety. Do not let them cling around your neck or arms to endanger you; duck them under until unconscious, if necessary to break a dangerous hold upon you, but do not strike to stun them.

(1) *Drawing Tongue Forward*

First. Do not delay an instant, and do not carry the patient face downward, or with feet higher than head. Immediately loosen the clothing about the neck and chest, exposing them to the wind, except in very severe weather. Try tickling in the throat with a straw or feather, or hold ammonia to the nose; give a severe slap with open hand upon the chest and soles of the feet. If no immediate result, after drawing the tongue forward in the mouth with handkerchief, cloth, string, or pinchers, proceed to get the water out of the body as below.

(2) *Forcing the Water Out*

Second. Lay the body, with its weight on the stomach, across any convenient object, a buoy, keg, box, boat, timber or your knee, in the open air, with the head hanging down. Press firmly on the back, between the shoulder blades; hold the tongue forward in the mouth and keep it in this position so as to let the water escape and help breathing. Keep the mouth clear of liquid. Roll the body gently from side to side

so as to relieve the pressure on the stomach, then back to the stomach. Do this several times to force the water from the stomach and throat.

(3) *Restoring Breath, First Movement*

Third. Laying the body on back, make a roll of a coat or any garment, place it under shoulders of patient, allowing the head to fall back; then, kneeling at the head, grasp the arms at the middle of the forearms, folded across the stomach; raise the arms over the head to a perpendicular position, drawing them backwards straight, then forward over head, to the sides again, pressing the arms on the lower part of the ribs and sides, so as to produce a bellows movement upon the lungs. Do this sixteen times a minute. Smelling salts, camphor or ammonia may be applied to the nostrils to excite breathing.

(4) *Restoring Breath, Second Movement*

Fourth. On signs of life, or when breathing is restored, the clothing should be removed, the body dried, and the limbs, arms, and body rubbed briskly towards the heart to restore circulation, then wrap in warm blankets or hot cloths. To encourage circulation, brandy or any spirits may be given, in small doses, with care to avoid strangulation, and brisk rubbing and warmth applied to the entire body.

Keep at work for hours until recovery, or until death is pronounced by a physician.

Stimulants should be given with great caution. Warm fluid nourishment (bouillon, etc.) is much better at first.

Over-exertion. If you arrive in camp quite "all in," take a hot drink of bouillon, coffee, Jamaica ginger, or whiskey, and eat a bite of something at the same time. Lie down for a bit with a blanket round you and ruminate on the joy of getting back to camp.

Starving persons. Give a starving person little at a time, and let that be well-cooked and digestible, like gruel or broth. Do not let him eat his full for a day at least.

Thirst. Nor should those on the verge of death by thirst be allowed to drink more than a few spoonfuls at a time, though that much may be given often.

On the march if no water is to be had relief can be secured by holding a pebble in the mouth or by chewing some kind of innoxious leaf or gum.

CHAPTER XXII

ON NATURE-BOOKS

It has seemed best to mention at the end of each chapter or paragraph dealing with a specific subject a few of the best books directly connected with that subject, so that the works already enumerated must form by far the larger part of the bibliography which I have tried to make an unique feature of this manual.

It only remains, therefore, to make mention of a few volumes in the various divisions of American woods-literature that may be heartily recommended to my readers.

The compilation of a really complete and authoritative list of nature-books would be a long and difficult task, though the object would be a worthy one; but it is hoped that the list of books enumerated below, though by no means including all the good ones on subjects connected with forest life, will be a source of stimulation and suggestion.

I am indebted to several of the best sporting authorities in the country for assistance in its compilation.

General Nature-Books

Thoreau's works should be in every nature-lover's library, as well as all those of John Burroughs; these are already classics. Of the younger school it is difficult to make a selection, so numerous are the really excellent books. Among

them are the works of Bradford Torrey and John Muir; Dr. H. van Dyke's *Fisherman's Luck, Little Rivers,* and other works; W. H. Boardman's *In the Woods;* John C. Van Dyke's *Nature for its Own Sake;* Ernest McGaffey's *Outdoors;* R. E. Robinson's *Hunting without a Gun;* Stewart E. White's *In the Silent Places* and *The Forest;* Hamlin Garland's *The Trail of the Gold Seekers.* Here too we may mention the new school of popular nature-writers represented by C. G. D. Roberts and E. T. Seton, about whose works so much discussion has taken place. Although it is understood that both these gentlemen, who frankly confess their stories to be only fiction although founded on close observation of nature, have here and there slightly overstepped the bounds of the probable if not of the possible, we must not forget that they have done much to arouse a wide-spread interest in the things of nature. Furthermore, many of their writings, such as Mr. Roberts's *Kindred of the Wild* and Mr. Seton's *Trail of the Sandhill Stag,* are as charming as they are instructive. Unfortunately, certain of the imitators of these popular writers are careless observers of nature and must also be the possessors of elastic consciences; for their writings teem with inaccuracies and contain serious perversions of the truth, as well as a mawkish, unwholesome sentimentality. It may be that Mr. Burroughs has been unnecessarily severe with some of these gentlemen, but one cannot escape the conviction that his indignation is justified. As will be seen by a perusal of this chapter, there is a wide choice of good books without descending to the level of the productions of the nature-fakers."

The writers of "strenuous fiction" constitute another class of outdoor prophets. While it is generally admired, I must confess to a personal dislike of the sensational in any art. What a delight to turn from one of these feverish compositions to the genial charm of a story like Albert Bigelow Paine's *Tent Dwellers*, or Prime's *I Go a-Fishing*. There is, too, the verse of Nessmuk, Dr. W. H. Drummond, C. G. D. Roberts, and Bliss Carman. And if we care to read of adventure there are Caspar Whitney's *On Snow-shoes to the Barren Grounds* and President Roosevelt's *Wilderness Hunter*, and other similar books, without going outside American subjects. Dillon Wallace's *Lure of the Labrador Wild*, Shultz's fascinating *My Life as an Indian*, and Grinnell's *Blackfoot Lodge-Tales* and *Pawnee Hero Stories and Folk-Tales* may also be mentioned here. Wild stories of battle and bloodshed may be had in the elder volumes dealing with the careers of real fighters like Custer, Miles, and others.

Adventure

A number of volumes dealing almost exclusively with camping-out have recently appeared, the best being H. Kephart's *Camping and Woodcraft* which, however, deals mostly with regions to the west of us, and does not treat of such subjects as hunting, fishing, canoeing, trapping, or photography. S. E. White's *Camp and Trail* is also more valuable to the Westerner; it is strong on the subject of pack-train tours, but does not deal with hunting, fishing, or photography. Good old Nessmuk's *Woodcraft* did much good in its day, but (I almost hesitate to breathe such heresy!) is now in some ways rather out of date.

Camping

Some good popular volume on natural history should be in every home, whether that of a sportsman or not. The best I am acquainted with is Hornaday's *American Natural History*, written for the unscientific, but full of information imparted in a very pleasing manner, and extremely well illustrated. Of late there have appeared many excellent volumes dealing with the intimate life of wild creatures, some of which have already been named. Among others are Ernest Ingersoll's *Wild Neighbors*, *The Wit of the Wild*, and *Wild Life of Orchard and Field*; this field is very large.

Natural History

Of out-and-out hunting books there is no end. Many have already been mentioned. We may add President Roosevelt's *American Big Game in its Haunts* (with G. B. Grinnell), *Outdoor Pastimes of an American Hunter;* Grinnell's *Trail and Camp-fire;* W. B. Leffingwell's *Wild-Fowl Shooting;* and the best book on taxidermy, Mr. Hornaday's *Taxidermy and Zoölogical Collecting.*

Hunting

The standard bird-book for our section of the country is Frank M. Chapman's *Birds of Eastern North America*, with which may be mentioned the same author's *Color Key to North American Birds*, and *Bird Studies with a Camera;* also Mabel O. Wrights *Birdcraft*, A. K. Fisher's *Hawks and Owls*, A. R. Dugmore's *Bird Homes*, H. E. Parkhurst's *How to Name the Birds*, F. H. Herrick's *Home Life of Wild Birds*, F. S. Mathews's *Field Book of Wild Birds and their Music*, and C. A. Reed's *North American Birds' Eggs.* The older works of Bradford Torrey and Olive Thorne Miller

Birds

are also delightful. *Bird Lore* and *The Auk* are the best magazines dealing with ornithology.

The standard work on fish is *American Food and Game Fishes*, by Jordan and Evermann. Other books dealing with game fish and angling have been mentioned in our chapter on *Fishing*. Among interesting and instructive books of less technical angling interest may be named E. A. Samuels's *With Fly-Rod and Camera*, and Charles Bradford's *The Brook Trout and the Determined Angler*. **Fish**

In the *Insect* world may be recommended C. M. Weed's *Nature Biographies*.

Coming to plants and trees the following may be considered representative authorities: F. D. Mathews's *Field Book of American Wild Flowers*, and *Familiar Trees and their Leaves;* F. T. Parsons's *How to Know the Wild Flowers*, and *How to Know the Ferns;* H. L. Keeler's *Our Native Trees and How to Identify them*, and *Our Northern Shrubs;* M. G. Peterson's *How to Know Wild Fruits;* H. E. Parkhurst's *Trees, Shrubs, and Vines;* N. L. Marshall's *Mosses and Lichens*, and *Mushroom Book*. Of *juvenile* nature-literature there is a vast quantity, mostly fiction. An excellent book to put into a boy's hands is Dan Beard's *Field and Forest Handy Book*. Another is Mabel O. Wright's *Four-Footed Americans and their Kin*. **Plants and Trees**

Outing is the leading sporting monthly of America, the editor being Mr. Caspar Whitney, the chief guardian

of our national amateur sporting reputation. *Country Life in America* is an interesting and artistic publication, while of the other monthlies may be named *Recreation* and *Field and Stream*, both excellent magazines, that deal almost exclusively with wilderness sports. *Rod and Gun* and *Motor Sports in Canada* and *The National Sportsman* complete the list of Eastern outing monthlies.

Periodicals

Of weeklies by far the most important, both in influence and intrinsic value, is *Forest and Stream*, which I would not willingly be without. *Arms and the Man* is avowedly devoted to the interests of the National Guard, but also gives considerable attention to field sports. There are a number of minor sporting periodicals, such as *Carleton's State of Maine Sportsman's Journal* (Augusta, Me.), a local monthly of interest.

The Catalogues of the most prominent sporting-goods makers and dealers may be properly included in our bibliography. The addresses of these firms may be got from their advertisements in the pages of the sporting periodicals.

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